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Thoughtfully adaptive teaching has long been thought to be an important component of teacher effectiveness, as well as being a logical and intuitively appealing idea (Anders et al., 2000; Hoffman & Pearson, 2000; Gambrell, Malloy, & Mazzoni, 2007; Snow et al., 2005; Williams & Baumann, 2008). Despite the many appealing qualities suggested by theorists of thoughtfully adaptive teaching, no empirical data existed to substantiate those claims. To extend earlier TAT research (Duffy et al., 2008; Parsons et al., 2010), my study investigated two teachers in three areas: (a) teachers' on-the-fly adaptations vs. adaptations made during planning, (b) whether adaptations are influenced by visioning, and (c) whether thoughtfully adaptive teaching is associated with student understanding of reading comprehension. Findings showed that, teachers made a three-fold increase in on-the-fly adaptations compared to previous studies, most likely due to their teaching experience and the ways their instruction was less imposed by district mandates. Compared to on-the-fly adaptations, teachers adapted five times less during planning, most likely due to the lack of ambiguity present during planning time. Over half of their

adaptations were designed to promote reading comprehension; despite the 50% increase of student responses from pre-to-post-interviews, no relationship could be linked to the teachers' adaptations. Minimal evidence was found linking their adaptations to their visions. Future studies are needed to investigate the link between teachers' adaptations and student outcomes relative to the lesson's objectives and standardized tests.

TEACHERS' ADAPTATIONS DURING PLANNING AND INSTRUCTION, THEIR VISION FOR TEACHING, AND THEIR STUDENTS' UNDERSTANDING OF READING COMPREHENSION

by

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Approved by

_____
Committee Chair

To my beloved wife, Missi, my guiding friend

And

To my amazing kids, Anna and Scotty, my everyday teachers

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

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CHAPTER I

INTRODUCTION

There is growing consensus in research literature that the most effective teachers should be knowledgeable professionals who are flexible, responsive, and adaptive (Anders, Hoffman, & Duffy, 2000; Corno, 2008; Hoffman & Pearson, 2000; Snow, Griffin, & Burns, 2005). To navigate the complexity of classroom instruction and to meet students' diverse needs, the argument that teachers must thoughtfully adapt their instruction to the situations in which they find themselves and to the students with whom they are working seems logical and intuitively appealing (Anders et al., 2000; Darling-Hammond & Bransford, 2005; Snow et al., 2005). Unfortunately, initial research on thoughtfully adaptive teaching provided minimal evidence for its existence: most teachers adapted far less frequently than expected given claims in the literature and when they did exist they were limited to low-level cognitive instruction designed to accommodate kids who "don't get it" (Duffy, Miller, Kear, Parsons, Davis, & Williams, 2008).

The current mixed-methods study extended previous thoughtfully adaptive teaching studies by (a) investigating two high-potential, upper-elementary teachers, (b) examining their adaptations during planning and whole-group reading instruction, (c) conducting the study in a different context (i.e., in a school where teachers are given autonomy in their daily practices), (d) determining teachers' visions and their impact on the adaptations they made, and (e) investigating the extent to which teachers' adaptations impacted their students' understanding of reading comprehension.

Rationale

Previous research on thoughtfully adaptive teaching, conducted in approximately 50 reading classrooms in Guilford County Schools, resulted in relatively few examples of thoughtful adaptations and fewer examples of metacognitive thought in teachers' rationales for their adaptations (Duffy et al., 2008; Parsons, Davis, Scales, Williams, & Kear, 2010). While these studies have helped to conceptualize the study of thoughtfully adaptive teaching, they have yielded little that would help researchers to understand the conditions under which it might occur. The quest for a more thorough understanding of thoughtfully adaptive instruction continues, exploring the following new directions.

Because state mandates and standardization pressures can restrict opportunities for thoughtful teaching, a new focus for research is to purposefully target teaching contexts where teachers report high levels of autonomy, teach creatively, and base their teaching on a vision. Recent research has suggested for teachers to learn to teach in more creative ways (Fairbanks et al., 2010). It has been argued that thoughtful teachers need a clear idea of what they are personally trying to accomplish (i.e., a well developed teaching vision)—

> Successful teachers cannot simply have an intuitive or personal understanding of a particular content, principle, or theory . . . Vision brings together teachers' passions, their hopes, cares, and dreams with their knowledge about how and what children should be learning. (Hammerness, 2006, pp. 5, 24)

Further consideration of thoughtfully adaptive teaching has brought about the realization that a broader definition of the term may be in order because teachers adapt in various contexts. Consequently, thoughtful adaptations made during teacher planning (as well as during instruction—as thoughtfully adaptive teaching was originally conceived) should be incorporated into this research design. Finally, none of these factors are of particular relevance unless it can be determined that thoughtfully adaptive teaching has a positive impact on students—an issue that has received very little research attention thus far.

In sum, this study examined new dimensions of thoughtfully adaptive teaching. First, the research was conducted in a school that promotes autonomy for teacher decision-making. Second, I observed more experienced teachers. Third, I studied teachers with a vision for teaching. Fourth, in addition to studying adaptations during instruction, I examined adaptations during lesson planning. Fifth, this study included an analysis of student outcomes—the extent to which their understandings changed over the course of reading lessons.

Research Questions

Given the above, the following research questions were proposed:

1. For planning:
    a. What are the types and number of adaptations teachers make?
    b. What rationales do teachers provide for planning adaptations?
2. For on-the-fly:
    a. What are the types and number of adaptations teachers make?
    b. What rationales do teachers provide for planning adaptations?
3. Do teachers report that adaptations are designed to promote students' understanding of reading comprehension?
4. To what extent do students demonstrate a change in understanding of reading comprehension?

5. What is the relationship between the kind of planning adaptations and on-the-fly adaptations teachers make in relation to
    a. Student understanding of reading comprehension?
    b. Teacher's vision?

Procedures

This mixed-methods study examined teachers' adaptations during planning and instruction for whole-group reading lessons, and the students' understandings of reading comprehension. Before the study, teachers were asked about their school and classroom climate and their visions for teaching in general—and more specifically for reading comprehension. Students were also interviewed before the study to elicit their understandings about reading comprehension. During the study, teachers were interviewed before each lesson to find out the adaptations they made during planning, the lessons were observed, and post-lesson interviews were conducted to inquire if teachers made on-the-fly adaptations during the lesson. At the end of the study, students were again interviewed to elicit their understanding about reading comprehension.

Ethics

Selected teacher and student participants were not interviewed until permission was gained from the following levels: IRB, parents, principal,

teachers and students. In addition, all participants were given pseudonyms. All participants were made aware through verbal and written communication that they could cancel their participation in the project at any time.

Assumptions and Limitations

There were limitations in this research design. The findings from this study are limited in generalizability. I investigated two teachers from one school. From each classroom I focused on three students—12 in the entire study. The duration of the study was relatively short—10 weeks, with an observation each week. I did not observe the entire reading session, only whole group instruction. This was because some students were partitioned out to part-time reading instructors for guided reading based on reading achievement. Having multiple reading instructors also limited the relationships drawn from the teachers in this study and their impact on their students (i.e., it was common for some students to receive reading instruction from additional teachers).

Another limitation was the content of their reading instruction. My study's focus was on reading comprehension; however, there were times when the teachers decided not to teach reading comprehension during whole group instruction. There was also the chance that throughout the interview process for

teachers and students, their instruction and responses might have developed in such a way to please me.

Conclusion

Teacher educators have collectively agreed that thoughtfully adaptive teaching is a necessary component for successful literacy instruction. Recent studies have called into question whether there is empirical evidence to support the existence of thoughtfully adaptive teaching (Duffy et al., 2008; Miller et al., 2006). The lack of evidence led me to include in this mixed-methods study several new areas of exploration. I studied two high-potential elementary teachers' visions and thoughtful adaptations during planning and reading instruction and how their adaptations impacted students' understandings of reading comprehension. What follows are the definitions for this study.

Definitions

In this section I provide definitions of terms used throughout this research.

Adaptations: A form of executive control in which teachers modify their professional information and/or practices during either planning or teaching in order to meet the needs of particular students or particular instruction situations.

Adaptations during planning: A teacher report during the pre-lesson interview of a change representing: (a) modification in district or school requirements; (b) a modification of materials; (c) a change from past experience; or (d) a change in instructional strategies.

Adaptations during a lesson or 'on-the-fly': An adaptation during the lesson occurs when the teacher is making a non-routine proactive decision that requires thought and is invented on the spot in order to make instruction suitable for the goal the teacher is pursuing. It must be: (a) non-routine, proactive, thoughtful and invented; (b) it must include a change in the professional knowledge or the professional practices the teacher is using; and, (c) was done to anticipate the needs of students or instructional situations.

Teachers' Rationale: The reason teachers provided for the adaptations they made in pre- and post-lesson interviews.

Evidence that teachers' adaptations were designed to promote reading comprehension: In order for an adaptation to be categorized as promoting reading comprehension, teachers must report that the adaptation was designed to promote reading comprehension.

Evidence of students' understanding of reading comprehension: In order for evidence to be present, students need to verbally report reading comprehension strategy use during their pre- or post-study interviews.

Students' change in understanding of reading comprehension: Students are considered to have changed if their reported reading strategy use doubled in frequency from what they said during the pre-study interview relative to what they said during the post-study interview.

High Potential Teacher: A high potential teacher is a teacher with multiple teaching degrees in a school where teachers feel unrestricted to make decisions.

Obstacles: Anything, an individual teacher says, may prevent them from continuing on a certain course of action.

Vision: The statement teachers make in a pre-study interview about their vision for teaching.

CHAPTER II

THEORETICAL BACKGROUND

Thoughtfully adaptive teaching has long been thought to be an important component of teacher effectiveness, as well as being a logical and intuitively appealing idea (Anders et al., 2000; Hoffman & Pearson, 2000; Gambrell, Malloy, & Mazzoni, 2007; Snow et al., 2005; Williams & Baumann, 2008). As Snow, Burns, and Griffin (1998) stated, what distinguishes effective teachers is their ability "to craft a special set of instructional ingredients for every child they work with" (p. 2) or, as Baumann and Duffy-Hester (2000) stated, the best teachers engage in "reflecting on [their] teaching and practice, inquiring about it, exploring it, and then taking actions to improve or alter it" (p. 78) (see also Bransford, Darling-Hammond, & LePage, 2005). Despite the intuitive appeal of these statements, no evidence existed, prior to a research project at UNCG, as to whether thoughtfully adaptive teaching exists in both planning and during instruction and whether it has an impact on student learning (Duffy et al., 2008; Parsons et al., 2010).

This study extends earlier research by the Thoughtfully Adaptive Teaching (TAT) research Project at UNCG. One purpose of this study was to investigate two upper-elementary teachers' thoughtful adaptations during planning and whole-group literacy instruction in a school where teachers are given autonomy in their daily practices. Another purpose was to investigate whether their adaptations were influenced by their vision for teaching. Finally, this study examined the extent to which their adaptations impacted students' understanding of reading comprehension.

This section discusses previous research on teacher decision-making and more recent studies on thoughtfully adaptive teaching. In order to extend TAT studies, this case looked beyond on-the-fly adaptations by examining teachers' planning, studied teachers with a vision in schools where there is less pressure for them to teach-to-the-test, and evaluated how teachers' thoughtful adaptations affected student learning.

Research Prior to Thoughtfully Adaptive Teaching

Thoughtfully adaptive teaching studies have their roots in earlier studies on teachers' thought processes and decision-making during planning and instruction (Clark & Elmore, 1981; Clark & Peterson, 1986; McCutcheon, 1980; Yinger, 1979). Clark and Peterson (1986) noted how teachers' decision making

within the classroom occurred in stages: *preactive* (planning that occurs before the lesson), *interactive* (thoughts and decision made during the lesson, or on-the-fly), and *postactive* (reflective planning that occurs after the lesson). Because of the ambiguous nature of measuring preactive and postactive planning, Clark and Peterson noted that, "the distinction between teachers' preactive and postactive thoughts does not seem to have been retained by researchers- these two categories have been subsumed under the category of teacher planning" (p. 258). Consequently, this study combines these two terms to mean *planning*.

Studies on teacher decision-making during planning showed that teachers plan for a variety of reasons, a process that is multidimensional and task focused (Clark & Peterson, 1978; Clark & Elmore, 1981; McCutcheon, 1980). During planning, teachers make modifications based on previous experiences, the curriculum, and their students' needs and interests. This planning varies according to specific tasks and activities and influences the content and the progression of topics for instruction. Working from Zahorik's (1970) definition of teacher behavior, "the verbal acts of the teacher that permit, encourage, and develop pupils' ideas, thoughts, and actions" (p. 144), they suggested that teacher planning did influence "opportunity to learn, content coverage, grouping

for instruction, and the general focus of classroom processes" (Clark & Peterson, p. 267).

Shavelson and Stern's (1981) review on teacher decision-making during planning supports this potential link between planning and various outcomes. They reviewed 18 studies and often found that teachers' planning were not only task focused, but concerned with content, their students, and instructional goals (see Clark & Yinger, 1979; Cooper, Burger, & Seymour, 1979; Joyce, 1978; Mintz, 1979; Morine, 1976; Morine-Dershimer, 1978; Peterson, Marx, & Clark, 1978; Smith & Sendelbach, 1979; Taylor 1970; Zahorik, 1975). Eleven of the 18 studies showed how teachers were most concerned with selecting content for the purpose of building tasks. Additionally, teachers planned tasks centered on subject matter, activity, goals, socio-cultural context, students, materials, and creating learning activities for students (Yinger, 1979). These studies further support how teachers, during this phase of planning instruction, may be more likely to adapt and modify their lessons.

The link between teachers' planning and the implementation of their goals for a lesson is not well understood. For example, when comparing effective teachers to non-effective teachers, effective teachers are able to filter and organize relevant information relative to their lesson; whereas, ineffective teachers often

have too many items to balance in their minds, similar to Doyle's (1979) study on the *differentiation* and Corno's (1981) idea of *selectivity*. In all, the findings showed little support as to what effective, interactive decision making for teachers entails; "We do not have a clear idea, however, of what constitutes effective interactive decision making by the teacher" (Clark & Peterson, 1986, p. 281). Perhaps research on planning can help educators to understand how teachers identify relevant information to use in planning, which, in turn, affect their instruction and students learning.

Recent Thoughtfully Adaptive Teaching Research

The Thoughtfully Adaptive Teaching research project at UNCG, led by Dr. Gerry Duffy, attempted to find empirical support for the existence of thoughtfully adaptive teaching (Davis, 2009; Duffy et al., 2008; Duffy et al., 2006; Parsons, 2008). During 2005-2006 (Duffy et al., 2006), this project developed a method of identifying and confirming on-the-fly adaptations along with generating three *a priori* categories: (a) *attempting to reengage students in a task*; (b) *addressing pragmatic concerns, such as time or material difficulties* (e.g. the overhead projector bulb has quit working); or (c) *assisting students in understanding instruction*. Subsequent studies developed a new coding system using grounded theory (Glaser & Strauss, 1967), generating new categories for adaptations and

for rationales. Instead of three categories, they identified seven categories: (a) *modifies the lesson objective*; (b) *changes by which objectives are met (e.g., materials, strategy, activity, assignment, procedures or routines)*; (c) *invents examples, analogy or metaphor*; (d) *inserts a mini-lesson*; (e) *suggests a different perspective to students*; (f) *omits/inserts activity or assignment*; or (g) *changes planned order of instruction*. This change occurred because researchers believed the first category system did not capture the complexity of thoughtful adaptations.

In addition to developing the codes, the UNCG researchers (Duffy et al., 2008) developed a rubric to evaluate three levels of thoughtfulness. The considerably thoughtful level showed exemplary creative use of professional knowledge or practice associated with the larger goal of literacy growth. The thoughtful level rating was applied to adaptations and rationales tied to a specific objective or goal. Finally, the minimally thoughtful level rating was given to adaptations and rationales requiring little thought that were fragmented or unclear, used incorrect professional knowledge or practice, or did not contribute usefully to lesson objectives.

Despite these studies, the project researchers failed to find empirical evidence to support its theoretical claims. Teachers did not adapt as frequently or as thoughtfully as suggested in the literature, ranging from less than 1.0

adaptations per lesson in the earlier studies (Duffy et al., 2008) to 2.3 in the more recent studies (Parsons et al., 2010). Certain findings, however, pointed to possible new areas for study. Parsons (2008) found evidence connecting the number and the quality of teachers' adaptations to their level of expertise: teachers who had the highest levels of expertise tended to adapt more frequently. Davis' (2009) study examined the knowledge teachers accessed when making adaptations: she recommended the study of visions as a way to better understand how teachers' adaptations relate to their expectations for student learning. Finally, because these studies were conducted in high-stakes accountability districts, both researchers (Davis, 2009; Parsons, 2008) asked for researchers to study teachers from districts where there was less pressured to teach-to-the-test.

One additional area of focus in which every TAT study called for is student outcomes in literacy. Duffy and colleagues (2008) stated,

> While thoughtfully adaptive teaching is often discussed as if it is inherently good in and of itself, we believe that teaching exists to improve student performance. Therefore, adaptive literacy teaching can be justified only if we can demonstrate improved student literacy performance. (p. 169)

As a result, this study selected teachers who stated a vision for teaching, had reputations for excellent teaching in a district where they had more autonomy for independent decision-making within their classrooms, and evaluated the extent to which teachers' adaptations were linked to an outcome measure, in this case, students' understanding of reading comprehension.

Summary of Decision Making and TAT

Research on thoughtfully adaptive teaching found such adaptations to be relatively rare and limited to low level cognitive instruction. New avenues for the future TAT studies were recommended: researchers should use broaden their scope to include planning (Clark & Peterson, 1986; Shavelson & Stern, 1981), include more experienced teachers (Parsons, 2008), evaluate their visions for teaching (Davis, 2009), conduct studies in districts with less emphasis on teaching-to-the-test, and attempt to evaluate the effect of adaptations on students' learning. In the next section, I explore the literature on teachers' visions and a rationale for including students' understanding of reading comprehension as a possible outcome measure.

Teacher Vision

This section first looks at teachers' metacognitive thoughts because of a possible link between such thoughts, adaptations, and teachers' visions.

Researchers have described teachers' metacognitive thoughts as "thinking about one's thinking" and the regulating of that thinking in pursuit of student learning (Duffy, Miller, Parsons, & Meloth, 2009; Zohar, 2006). Until recently, researchers assumed teachers' thoughtfully adaptive actions were rooted in rational cognitive processes such as dimensions of teacher knowledge (content, pedagogy, etc.) or what has been characterized as "cold" cognition. That is, during instruction when teachers become aware of an instructional problem, they use their repertoire of professional knowledge to decide how to change (or how to adapt). TAT research provided some support for the hypothesis that teachers use professional knowledge, especially knowledge of students, as a basis for adapting (Davis, 2009; Duffy et al., 2008; Parsons et al., 2010).

To the extent teachers adopt a 'take charge' (Baumann & Duffy-Hester, 2000) attitude when adapting, this proactive stance might require more than the use of professional knowledge, what researchers refer to as "cold" cognition. Researchers have supplemented this "cold" cognition perspective of metacognition with an alternative concept of "hot cognition" (Pintrich, Marx, & Boyle, 1993). As a result, learning is not only cognitive, but it is dependent on affective, motivational, and dispositional factors (see, for instance, Garcia & Pintrich, 1994; Markus & Nurius, 1986). Contemporary work on metacognition

echoed these ideas. For instance, in the introduction to the 2009 *Handbook of Metacognition in Education*, Hacker, Dunlosky, and Graesser characterized metacognition as "agency" involving not only "thinking about one's thinking" but also "self-awareness, self-determination, and self-direction" in which people are agents of their own thinking. Metacognition is not a "simple mechanistic model"—it is not solely cognitive, but requires a "self-aware agent" or a "dialogical self" or "self-schemata," involving "predisposition, interests, and aspirations." Metacognitive actions are driven by cognition *plus* disposition.

I hypothesized the possibility of a similar factor in teachers' adaptations. Pintrich (2000) argued that initiating and sustaining change (as teachers do when engaging in thoughtfully adaptive teaching) requires skill *and disposition*. That is, individuals (in this case, teachers) must have a purposeful goal . . . a disposition toward thoughtful engagement. Therefore, the beliefs, goals, and dispositions, *as well as* their knowledge, determines whether teachers recognize that an instructional situation needs attention (i.e., that an adaptation may be necessary), which causes them to make a decision to take action. Pintrich and Schrauben (1992) reported that more affectively charged beliefs (e.g., motivation, values, disposition, goals, self-schemas) are central to decisions about actions. Hence, "cold" cognition alone may not be the sole factor in teachers' decision making.

With that in mind, I explored what kind of "hot" cognition factors shape teachers' pedagogical choices. It has been argued that, in addition to content knowledge, teachers' decisions are rooted in convictions and values regarding what they are personally trying to accomplish in their teaching; i.e., they possess a well developed vision (Fairbanks et al., 2010). According to Hammerness (2006), "Successful teachers cannot simply have an intuitive or personal understanding of a particular content, principle, or theory . . . Vision brings together teachers' passions, their hopes, cares, and dreams with their knowledge about how and what children should be learning" (pp. 5, 24).

Duffy (2002) linked visioning and effectiveness when he stated that teachers who have a vision are often able to "adjust, modify, and invent; they do not [just] emulate" (p. 333). To thoughtfully adapt, teachers then must "be psychologically strong enough to use professional knowledge in creatively resourceful ways" (p. 332); they must harness both knowledge and disposition. Thoughtful adaptations are more than "cognitive"; they are "affective" because teachers must be *disposed* to being thoughtfully adaptive in response to complex and unanticipated problems that arise (Meloth & Deering, 1999).

In response to past studies thoughtfully adaptive teaching studies, Fairbanks and her colleagues (2010) wrote

> that the common denominator is possession of a voice or agency. While knowing "that' and knowing "how" are both essential, thoughtfully adaptive teachers know when to apply "what" and "how" knowledge and when not to and they know why it would be appropriate in one situation but not another. Teachers who apply knowledge differentially in this way proactively look for multiple perspectives and pursue multiple possibilities. Doing so requires a distinct voice or agency. Developing such a voice or agency requires teacher educators to go beyond standard professional knowledge and to include also development of a metacognitive sense of one's professional self and a propensity to negotiate the complexities of classroom life. (p. 26)

This voice could come from teachers' visions, a roadmap that enables teachers to steer towards being agentic, to guide them in determining "what," "how," "when," and "why" they must respond thoughtfully. Visioning might give researchers insight into teachers' "hot" cognition, a way of investigating disposition for teaching. In the following paragraphs, I discuss teacher visioning.

Teacher education theorists and researchers view visions as involving knowledge of self, a sense of purpose to regulate how decisions are made (Duffy, 1998, 2002). Visions are thought to drive teaching (Kennedy, 2006). They encompass a moral code or conviction (Duffy, 1998; Jensen, Foster, & Eddy, 1997); relate to beliefs about learning (Adcock & Patton, 2001); and are futuristic and consider possibilities (Rosaen & Schram, 1998). A visual connecting these points is illustrated in Figure 1.

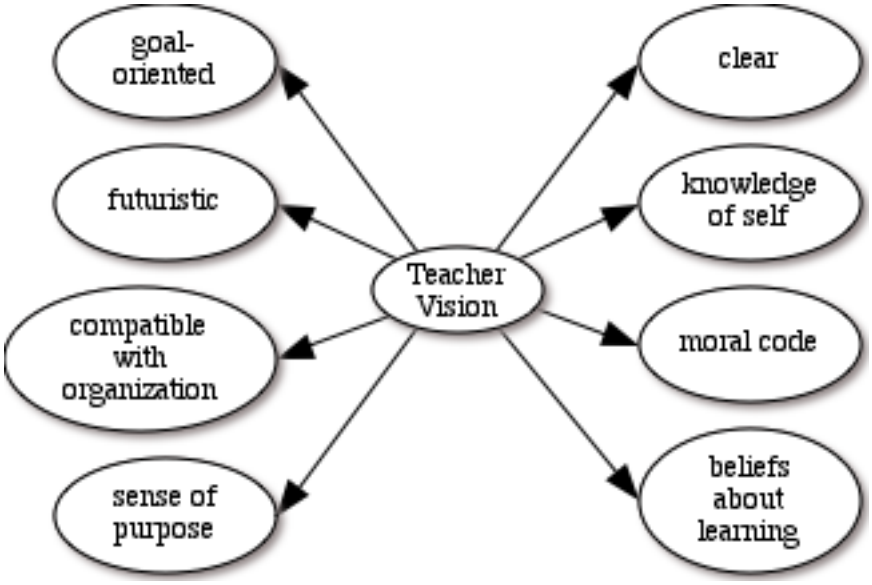

Figure 1. ***Teacher Vision***

Feiman-Nemser (2001) described teachers' visions as the beliefs of "what is possible and desirable in teaching to inspire and guide their professional learning and practice" and that visions "connect important values and goals to concrete classroom practices" (p. 1017). Visions arise from knowledge and beliefs, specifically involving subject matter and teaching pedagogy. Having a vision is a way for new teachers to negotiate declarative, procedural, and conditional knowledge in their practice—helping them figure out "when, where, how, and why to use particular approaches" (p. 1019). Unfortunately, not all teachers practice with a vision. Feiman-Nemser attributed the lack of visioning

to the vast disconnect along the continuum of teacher education, professional development, and policy.

Kennedy (2006) defined vision as the "detailed plays with scenes, episodes, and characters all organized to lead to a particular conclusion" (p. 207). Duffy (2002) defined vision as "a personal stance on teaching that rises from deep within the inner teacher and fuels independent thinking" (p. 334). Hammerness (2004) referred to vision as the images teachers hold for classroom practices from which, "their hopes and dreams for themselves, their students, their schools and even sometimes their communities—and that these images play a significant role in teachers' lives and work" (p. 34). A vision involves "maintaining the delicate balance between constantly shifting demands of subject matter and students' needs; and dealing with the uneasy tension between their ideals and their current practice" (Hammerness, 2006, p. 5).

Consequently, I hypothesize that teachers who have a clear vision may be more likely to negotiate or resist obstacles such as the mandated curriculum, excessive test preparation, and scripted programs (Valencia, Place, Martin, & Grossman, 2006). The importance of teachers' clear sense of purpose or vision is supported by studies where teachers were found to overcome obstacles by 'adapting' the curriculum and acting upon their vision (Achinstein & Ogawa,

2008; Duffy, 2002; Hammerness, 1999, 2006; Turner, 2007). In light of this evidence, attempts to understand teachers' thoughtfully adaptive teaching should include teachers who possess a clear vision for their teaching and therefore combine both "cold" and "hot" cognition in their practice. The section below illustrates how researchers have tackled teacher visioning.

Studies on Teacher Visioning

In this section I review four studies teacher visioning: Hammerness (1999), Rohr (2005), Turner (2007), and McElhone et al. (2009). These studies present a variety of ideas for evaluating teachers' vision statements. Below is a summary of their studies.

Hammerness study (1999). To date, Hammerness has the most publications on teacher visioning, all based from her dissertation study (1999). She surveyed 80 teachers (prospective, novice, and veteran). She narrowed the sample to 16, deliberately selecting teachers whose vision statements were clearly articulated and vivid. From the 16 teachers, she selected four teachers for an in-depth analysis. Hammerness (1999) wrote "portraits" of their visions—a visual image in writing to portray the complexity and richness of vision statements. The portraits were designed to provide a sense of who the teachers were—conveying their settings, their actions, and their words—and, the complex

role of vision. Although their visions were concrete and stable, they varied in terms of the content as well as the dimensions of vision—"the content and clarity of focus; the span of the range; and the distance from practice" (Hammerness, p. 44). She also found relationships within certain dimensions of the teachers' vision statements (e.g., distance and focus relationship, and range and context). She noted that the clarity of visions can help teachers to reflect and imagine how to move from current practice to their ideal, but it can also bring demoralization and discouragement if they are not realized. She questioned whether a vaguer, fuzzier vision could possibly insulate teachers in less-than-ideal circumstances—if the vision is cloudy, then a vision cannot act as a guide. On the other hand, she noted that clear visions could "sustain their motivation and excitement" (p. 131) and provide a means for reflection and a template to guide curriculum. A "clear, distant vision may provide an optimal condition for certain teachers," however it can be discouraging for others (pp. 131-132).

Hammerness (1999) also reflected on the range and context of vision statements. In a supportive context, a broad range can be extremely motivating. On the other hand, breadth can present more areas in which to fail. Some teachers stated that they would not be satisfied if their visions were not working beyond the classroom. It could also be discouraging, especially on a broad scale,

if there lacks supportive environment. Depending on the supportive context(s), it might be sufficient to just focus on the classroom level. At any level, contextual support was found to be vital.

In summary, Hammerness (1999) did not qualify whether vision statements were "strong" or "weak"—a vision is neither wholly good nor completely bad (p. 39); however, she categorized vision statements within certain dimensions—focus, range, and distance. Her analysis also suggested that the dimensions of teachers' visions were influenced by supportive and unsupportive contexts.

Rohr's study (2005). Rohr's (2005) study looked at whether preservice teachers possessed a vision, whether it changed over time, and whether prospective teachers who had high grades had different visions from those who had low grades. Sixty sophomore college students were purposefully selected from an introductory teacher education class. The students were equally divided into two groups (high and low) based on their course grades. Rohr defined visioning as

> a mindset that compels teachers to determine within themselves that it is their moral responsibility to be actively involved in the intellectual undertakings that are necessary to bring about the creation of innovative

> instruction and the transformation of knowledge for their students' moral and intellectual development. (p. 12)

When looking at the initial statements, Rohr found that most statements were not vision statements. Only 17 out of 60 met the criteria, 13 of these emphasized intellectual statements, and the distribution did not differ among the high and low achieving groups. When the final vision statements were written 38 out of 60 met the criteria; 18 emphasized intellectual statements, and 20 emphasized moral statements. The higher achieving students seemed to favor intellectual vision statements (academic competence and student motivation were represented relatively equally); whereas, lower achieving students seemed to favor moral vision statements. Rohr's attention to the content of visions gives us a good starting point for how we want to analyze vision statements.

Turner study (2007). Turner (2007) used visioning as a reflective tool to help prospective teachers express their ideals about culturally responsive teaching practices. The participants included 20 prospective teachers seeking teaching certification by taking part in a graduate reading methods course—the researcher also served as the instructor.

For visioning, Turner used Squires and Bliss's (2004) definition as "a process that provides a structure for expressing and examining existing beliefs"

(p. 758) and Hammerness's (2004) idea that visions allow teachers to reflect their "hopes and dreams for themselves, for their students, and even sometimes their communities" (p. 34).

Although not stated as "strong" or "weak," the *areas of focus* seemed to entail strong vision statements; and, *blind spots* seemed to illustrate weak vision statements. Because these vision statements were evaluated as a class assignment, much of the statements were similar in nature due to the instruction they received and the rigid guidelines imposed by the researcher (who was also the instructor of the class). It is hard to tell if these were true vision statements illustrating the prospective teachers' beliefs, or vision statements designed to oblige the researcher—there was little variance shown in the vision statements according to the findings (i.e., much of the vision statements contained the five *areas of focus* and the two specific *blind spots*)—one could argue these results were due to classroom instruction and the specific questions asked.

McElhone et al. study (2009). McElhone et al. (2009) incorporated Hammerness' (2003) definition of vision as "images of ideal classroom practice" (p. 43). They followed 13 preservice elementary teachers from their preservice year through their first year of teaching. The participants were students in a post-baccalaureate program, obtaining a teaching credential and master's degree.

They looked for patterns during the preservice year, during the inservice year, and compared and contrasted between the two years. Similar themes developed among the cohorts' vision statements (e.g., *student talk and collaboration*, and *classroom climate*) during both the preservice and inservice years. Time and context impacted their vision statements, allowing their visions to become more *focused* and finding steps toward closing the *distance* between their vision and practice. They found over the course of a year that teachers' vision statements became more focused as their knowledge of content knowledge and teaching pedagogy increased.

McElhone et al. (2009) did not use a rubric for evaluating vision statements for judging whether vision statements were "strong" or "weak." They determined how "stable" vision statements came from teachers who were confident and had clarity of purpose. Although no weight was given to the vision statements, the researchers argued for teachers to have clear and focused visions—

> our research suggests that in addition to supporting teacher candidates' knowledge, it may be worthwhile to work actively and explicitly to help them develop their visions for teaching, to synthesize their knowledge, beliefs, and passions into a clear, specific, personally meaningful vision of the teaching they hope to enact. (p. 21)

Summary of visioning studies. These studies provided possible guidelines for how teacher visioning can be linked to teachers' thoughtful adaptations. From the descriptions it is evident that having teachers formulate vision statements are helpful in articulating personal reflection and disposition. There are, however, areas of concern as it relates to our study. Some of the studies involved visioning as being a part of a class assignment, or particular students from a class being studied. The intentions from these projects focused on guided vision statements, or tracking how vision statements changed over time. Most of the teachers in these studies were also inexperienced. For these reasons my study is different.

I propose to look at experienced teachers—purposefully selected because they are teachers with high potential, who are passionate about their profession, and who work in schools that support their vision. What also remains unclear from thought and research in teacher visioning is its impact on student outcomes. Do teachers with visions have a higher propensity to positively impact children? This question has not been answered, but will be investigated in this study. Until then, "visioning is just a hypothesis. Its validity must be established by research" (Duffy, 2002, p. 340).

Summary on Teacher Visioning

The purpose for studying teacher visioning was to extend Thoughtfully Adaptive Teaching studies by investigating whether "hot" cognition influenced teacher decision making. Part of my study was to investigate teachers' vision statements. Like the research on visioning suggests, it was hypothesized when teachers have a clear vision for teaching they will be more likely to be thoughtfully adaptive in their classrooms (Duffy, 2002). While this study's main focal point was thoughtfully adaptive teaching, I also wanted to investigate the relationships of teachers' thoughtful adaptations and their visions for teaching.

Students' Understanding of Reading Comprehension

Along with investigating the relationship of teachers' thoughtful adaptations and their visions for teaching, another purpose of this study was to find ways to investigate the impact of teachers' adaptations on student learning. To date, TAT studies lacked evidence regarding how students perform when teachers are thoughtfully adaptive. Currently, other TAT researchers are investigating how teachers' adaptations impact students' agency during literacy instruction, students' ability to summarize during reading instruction, and students' performance in inquiry during science instruction. The student

outcome investigated in this study was the change in understanding of reading comprehension.

Situating Understanding of Reading Comprehension

There are many views that explain how readers comprehend. These views encompass certain understandings readers need to comprehend text. In search for these understandings, I first surveyed "conceptual understanding" literature to gain insight as to how we understand. Using conceptual understanding as a framework for reading comprehension, I then summarized three views of reading comprehension.

Conceptual understanding. In this section I summarize theories and research on conceptual understanding. To do this, I supply a sample of definitions of conceptual understanding. I then explain the importance of conceptual understanding relative to reading comprehension.

I note that throughout my findings concerning *conceptual understanding, a* few researchers also used *conceptual knowledge*—note that no where in my findings were distinctions made between the conceptual understanding and conceptual knowledge—consequently, I use them interchangeably based on how the researchers defined it.

A *concept* is a mental representation of a category of related items that help us organize experiences and information (Klausmeier, 1990; Pressley & McCormick, 2007). *Conceptual understanding* has been defined in similar ways: Ormrod (2008) referred to conceptual understanding as "the logical connections among specific concepts and principles related to a topic" (p. 249) and Hiebert and Lefevre (1986) defined it as "knowledge that is rich in relationships . . . a connected web of knowledge, a network in which the linking relationships are as prominent as the discrete pieces of information" (pp. 3-4). These definitions signify an understanding of connections or relationships among concepts.

Others have tackled conceptual understanding slightly differently. For example, Byrnes and Wasik (1991) separated conceptual knowledge from procedural knowledge by stating that conceptual knowledge consists of the "core concepts for a domain and their interrelations (i.e., 'knowing that')" and "procedural knowledge, on the other hand, is 'knowing how' or the knowledge of the steps required to attain various goals" (p. 777). This statement assumes two ideas—their idea of conceptual knowledge ("knowing that") is what others have called declarative knowledge (Paris, Lipson, & Wixson, 1983) and that procedural knowledge is not part of conceptual knowledge.

For science education Alao and Guthrie (1999) characterized conceptual understanding in terms of *breadth* and *depth*—"breadth refers to the extent that knowledge is distributed and represents the major sectors of a specific domain and depth refers to the knowledge of scientific principles that describes the relationships among concepts" (p. 244). They explained how prior knowledge, learning strategies, interest, and learning goals are related to each other and also to "different indicators of conceptual understanding (e.g., text comprehension, propositional knowledge, procedural knowledge)" (Alao & Guthrie, p. 243). Their explanation stands apart from the others because they included components important to the acquisition of conceptual understanding as well as the indicators (i.e., propositional and procedural knowledge). These indicators signal a difference from the other definitions because they assume a partnership of knowledge embedded within conceptual understanding.

For math education Roux (2009) stated that "mathematical knowledge consists of conceptual, procedural and conditional knowledge. *Conceptual knowledge* (also known as declarative, or "know that" knowledge) is knowledge rich in relationships and understanding and can be seen as a connected web of knowledge. Here, Roux added conditional knowledge—"knowing when and why" (Paris, Lipson, & Wixson, 1983, p. 303), but defined conceptual knowledge

as being declarative and considered the overall knowledge as mathematical knowledge.

Alexander's (1992) characteristic of domain knowledge closely resembles Roux's (2009) characteristic of mathematical knowledge. First, Alexander defined domain knowledge as "the realm of knowledge that individuals have about a particular field of study" (p. 34). She further stated that "domain knowledge encompasses declarative (knowing that), procedural (knowing how), and conditional (knowing when and where) knowledge" (p. 34). A person's domain knowledge is part of their conceptual knowledge—"domain knowledge is a specialized instance of an individual's prior knowledge. It is that segment of an individual's existing conceptual knowledge that is related to a specific 'studied' area" (p. 35).

There exists a lack of agreement on what constitutes conceptual understanding (Canobi, Reeve, & Pattison, 1998), but all get at the knowledge and relationships of concepts. Some go beyond the idea of relationships of concepts—one separates conceptual understanding from procedural knowledge, some signify that conceptual knowledge is "knowing that," and one combines propositional knowledge (i.e., declarative knowledge) and procedural knowledge as an indicator to conceptual understanding. Some combine

declarative, procedural, and conditional knowledge, but do not attribute them to being conceptual knowledge. Given these various definitions, what constitutes conceptual understanding for reading comprehension? In the next section I examine different perspectives of reading comprehension by illustrating three models of reading (narrow view, simple view, and strategic view).

Models for reading comprehension. To develop an operational definition of understanding for reading comprehension, we must first examine how reading comprehension has been viewed. In past decades the reading research community has changed their views about reading comprehension (Alexander, 1998)—as such, models of reading comprehension have changed over the years (Baker & Brown, 1984; Duffy, 2009; Pearson, 2009; Pressley et al., 1992). These models explain what readers think and do when reading. Prior to about 1970 comprehension was believed to occur when readers could decode words and were smart (Duffy, 2009).

A change occurred near 1975 when educators of the Center for the Study of Reading applied a cognitive approach to how comprehension works (Anderson & Pearson, 1984). During this time, researchers viewed reading comprehension to be a strategic process where readers interacted with the text (Paris, Lipson, & Wixson, 1983; Pearson, 2009). Here, strategic readers selected

an appropriate reading strategy, monitored their goals, and made necessary changes to insure their success (Miller & Faircloth, 2009).

Building on this interactive reading process, research moved to incorporate a transactive model, where readers' responses to text either enhanced or replaced cognitive responses to the content (Pearson, 2009). Research has found that in its simplest form, readers comprehended by generating meanings by making connections with the text and their background knowledge (Duffy, 2003). What was not so simple was the process that readers go through to make these connections. Still today, however, researchers view reading comprehension differently—characterizing reading comprehension from various points of view—I will review three perspectives of reading comprehension: the narrow view, the simple view, and the strategic view.

Narrow view. The narrow view comes from ideas developed by Kamhi (2009). He used the narrow view as a way to conceptualize reading as opposed to the "broad view" (i.e., strategic comprehension). Below is Kamhi's (2009) conceptualization of the narrow view for reading:

> Unlike the broad view of reading, which conflates reading and comprehension, the narrow view restricts the scope of reading to word recognition alone. By limiting reading to word recognition, the focus is now on a skill that can be taught to all students except those with the most

> severe disabilities. By embracing the narrow view, we can eliminate our nation's obsession with something that cannot be easily taught—domain-general comprehension and reasoning. (p. 176)

In Kamhi's (2009) narrow view, comprehension is separated from reading—his view of reading only involves word recognition. In this view, for comprehension to be maximized, content knowledge (as a way to build prior knowledge) must be taught in conjunction with word recognition skills through teacher directed practices. Assessing reading would focus only on word recognition.

Simple view. The simple view comes from ideas developed by Gough and Tunmer (1986). They used the simple view as a way to conceptualize reading—that reading is the product of decoding and comprehension. Below is Gough and Tunmer's (1986) conceptualization of the simple view for reading:

> Reading equals the *product* of decoding and comprehension, or $R = D \times C$, where each variable ranges from *0* (nullity) to *1* (perfection). We trust it is clear that by comprehension we mean, not reading comprehension, but rather *linguistic* comprehension, that is, the process by which, given lexical (i.e., word) information, sentences and discourses are interpreted . . . the simple view clearly asserts that reading ability should be predictable from a measure of decoding ability (e.g., the ability to pronounce pseudowords) and a measure of *listening* comprehension. (p. 7)

In Gough and Tunmer's (2009) simple view, reading comprehension (R) equals the product of decoding ability (D) and listening comprehension (C): R = D x C. In this view, for comprehension to be maximized, decoding skills are drilled until automaticity is reached—an increase in decoding ability and/or listening comprehension would increase reading comprehension.

Strategic view. This particular strategic view comes from ideas developed by Duffy (2009). Duffy did not label his reading comprehension model the "strategic view," but for this paper I do so for the purpose of comparing his model to the two *views* examined earlier. Duffy's conceptualization of reading comprehension is different from the other views because it involves a strategic process were readers respond flexibly and adaptively, depending upon the situation (Duffy & Roehler, 1987). The summary below illustrates the reading process—what readers do before, during, and after they read to make sense of the text.

Duffy's (2009) model presents comprehension as a process (see Appendix A). Here, the purpose of reading is message sending and message getting. Reading is not a random process, it is a system—a set of skills and strategies used to interpret and make sense of texts. Duffy distinguished the difference between skills and strategies—skills are actions that can be accomplished

automatically through repetition and without thought, whereas a strategy is a thoughtful plan. Readers must adapt comprehension strategies to various kinds of text situations. Following are the reading strategies that readers use throughout the text.

Strategies before reading. Readers access prior knowledge about the topic, the style of text, and the purpose. Here readers get the gist of what they are about to read.

Strategies during reading. Duffy's comprehension framework revolves around a continuous cycle that readers perform. Readers are actively monitoring, questioning, and re-predicting as they read. They use a strategy or multiple strategies along with their prior knowledge to generate meanings and to perpetuate this continuous cycle when they read. Such strategies include imaging, inferring, and fixit measures. Important to this cycle are readers' abilities in building word meaning, predicting, understanding main idea, summarizing, evaluating, and synthesizing. It is important to note that these strategies can be combined for the best fit.

Strategies after reading. Good readers are strategic by reflecting after they read. They ask questions such as:

- Did I achieve the purpose I had for reading?

- Did I find out what I wanted to find out?
- Has my thinking changed as a result of the reading?
- Is it important or accurate?
- Can I use this?

In sum, this representation illustrates the strategic nature involved in reading comprehension. Compared to the narrow and simple view, strategic reading comprehension encompasses much more than decoding words, listening comprehension, and possessing content knowledge. Good readers actively use their background knowledge (i.e., social, cultural, and language/vocabulary experiences) along with prior knowledge about the words, the text, and context—and their personal conceptions of efficacy, values, persistence, and goals (Schunk, 2005; Zimmerman, 1989). These factors interact to promote reading comprehension. If comprehension breaks down, they self-evaluate and self-reflect on cognitive/learning strategies (making connections, predictions/re-predictions, re-reading, etc.) in relation to their prior experiences and to the stance(s) they have taken (Rosenblatt, 1978/1994). New meanings are constructed and/or fix-up strategies are used for misunderstandings (Duffy, 2003; Pressley et al., 1992). In the strategic view, readers need to conceptualize a variety of strategies. In the next section I provide an operational definition for

conceptual understanding that encompasses what researchers say is needed for successful reading comprehension.

Definition of conceptual understanding for reading comprehension. I will use the strategic view to form a definition of conceptual understanding for reading comprehension because it illustrates an integration of knowledge and awareness needed to comprehend text. Following are qualities readers need to be strategic.

Pressley and his colleagues (1989) noted that

> If students are to employ strategies consistently and skillfully, they must know the value of procedures as well as when and where to use them, with each strategy having very specific information attached to it (hereafter, metacognitive knowledge about specific strategies). This type of knowledge plays an absolutely critical role in the autonomous use of strategies. (pp. 304-05)

Duffy and his colleagues (1987) also expanded on these qualities:

> Poor readers in particular find it difficult to develop and use such strategies—they do not possess the knowledge of strategies and often are not aware of when and how to apply the knowledge they do possess—they often cannot infer conceptual meaning from surface-level information, have poorly developed knowledge about how the reading system works, and find it difficult to evaluate text for clarity, internal consistency, and compatibility with what is already known. (p. 348)

Paris and Hamilton (2009) expressed that reading comprehension goes well beyond decoding:

> Once threshold values for decoding are met, readers must do the hard cognitive work of constructing a model of the text and situation, integrate those models with prior knowledge, and operate recursively on the representations to monitor and revise them. (p. 48)

From these explanations describing the qualities of knowledge for strategic reading, good readers need to know more than a relationship of strategies. Most of the earlier definitions mentioned on conceptual understanding, however, do not adequately characterize the conceptual understanding needed to be a strategic reader. Good readers have declarative, procedural, and conditional knowledge of strategies (Duffy, 1993). Alexander's (1992) characteristics of domain knowledge exemplify the qualities of a strategic reader. It is not surprising that she called on researchers to consider the integration of strategies with domain knowledge, "it is time to bring domain knowledge and strategy research into conjunction in order to build a more complete model of learning" (p. 41). In an attempt to do so, I define students' conceptual understanding of reading comprehension as their verbally reported strategy use during their pre- or post-study activity interviews.

In the next section, I explain theories and research on *conceptual change*. To avoid confusing conceptual understanding with conceptual change, for the rest of this paper I will simply refer to conceptual understanding as *understanding*.

Conceptual change. By studying understanding, it seems appropriate to also study conceptual change. In this section I review common definitions of conceptual change. I then review how conceptual change has been studied in reading comprehension. Finally, I provide an operational definition for conceptual change as it relates to my study in reading comprehension and thoughtfully adaptive teaching.

Researchers have referred to conceptual change as the "kind of learning required when the new information to be learned comes in conflict with the learners' prior knowledge" (Vosniadou & Vershaffel, 2004, p. 445)—"a process that involves a significant revision or overhaul of an existing belief or theory" (Ormrod, 2008, p. 225)—and, the processes of removing a misconception (Chi & Roscoe, 2002). Moreno (2010) also referred to conceptual change as the process of changing a misconception and provided an explanation for how this occurs:

a. Students need to experience a cognitive conflict between their existing concept and the new concept.
b. The new concept needs to make sense.

c. The new concept should be useful in addressing new problems or situations. (p. 246)

What one can derive from these terms is that conceptual change is *learning*, is a *process*, and is an *experience*. One can also derive that a conceptual change is removing a *misconception*. Misconceptions are miscategorizations of concepts, or concepts categorized into an inappropriate categories. Conceptual change can be a difficult learning process because misconceptions can serve as barriers. Often children have misconceptions from the prior knowledge and experience they possessed before they enter school, or from misguided instruction. Misconceptions can pose a problem for children because "one may fail to realize that they exist and continue to operate in ways that reinforce rather than remediate the problem" (Alexander, 1992, p. 43).

Conceptual change in literacy has usually focused on how comprehension strategies are useful in guiding students to conceptual change in other knowledge domains, especially in science and math (for example, Alao & Guthrie, 1999; Conley, 2009). For example, Alao and Guthrie noted that "higher level strategies (e.g. monitoring of comprehension, connection among ideas, and elaboration of ideas) are used to understand main ideas and concepts" (p. 244). Conley added that "from a conceptual change point of view, comprehension

centers on interactions between existing knowledge and new scientific knowledge" (p. 541). Unfortunately, fewer studies have looked at conceptual change and misconceptions focusing on the domain of reading comprehension strategies.

Duffy's studies (Duffy, 1993; Duffy et al., 1987) looked at teachers' and students' conceptualizations of reading comprehension. For example, after observing a lesson on strategy instruction, Duffy (1993) asked the students three levels of questions:

1. What were you learning in the lesson I just saw?
2. How do you do what you were taught to do?
3. When would you use what the teacher was doing? (p. 234)

Notice that these questions center on declarative, procedural, and conditional knowledge relating to the instruction they received. Duffy (1993) compared students' interview responses from specific lessons (i.e. what students thought the lesson was about, when to use what was learned and how to use it) to lesson transcript excerpts (i.e. teacher instructional actions). Throughout the study, he noted that a majority of students' responses showed a limited amount of change—their understandings focused on naming the individual strategy and

its identifying elements. Analyses of lesson transcripts suggested that this happened because naming is what teachers emphasized during lessons.

In another study, Duffy and his colleagues (1987) asked similar questions after lesson observations in addition to a concept interview at the end of the study. Below are the questions asked during the concept interview:

1. What do good readers do?
2. What is the first thing you do when you are given a story to read?
3. What do you do when you come to a word that you don't know?
4. What do you do when you come upon a sentence or story you do not understand? (p. 354)

Although these questions did not identify conceptual change—students were asked these questions one time—it provided a framework as to what children's conceptions were concerning what they do when they read. Using a protocol like this—before and after a study—could aid in examining a change in understanding.

Pressley and Afflerbach's (1995) studies with verbal protocols also looked at readers' conceptions of the reading process. They looked at 38 studies that included participants from various reading levels (from sixth graders to college professors) and from various styles of text. From these studies they developed a framework for evaluating verbal reports in relation to how participants think

aloud when they read. Their framework was broken into three major categories: cognition strategies (constructing meaning), monitoring, and evaluating. These studies, however, did not examine a change in understanding because the verbal protocols were administered in one setting—but this application could be used for longitudinal studies to note change. From these studies, researchers were able to examine the ways readers strategically read texts. Not evident in these studies were explanations of when and why these readers decided to use certain strategies. For my study, verbal protocols would not be practical given the amount of time needed for data collection and analysis.

Summary of the Understanding of Reading Comprehension

In sum, studies on understanding and conceptual change involving reading comprehension have mostly examined how reading comprehension can aid in other domain knowledges (e.g., science and math). However, there have been studies that examined reader's conceptions about strategy use within the domain of reading comprehension. I adapted ideas from these studies to measure students' change in understanding of reading comprehension.

Conclusion

Despite the recent studies on TAT, researchers have only come so far in understanding the nature of teachers' adaptations in the classroom. In sum, this

study went beyond 'on-the-fly' adaptations to adaptations teachers made during planning, examined the kinds of adaptations high potential teachers made relative to their visions for teaching and examined students' change in understanding of reading comprehension as a potential student outcome. By extending previous studies the purpose was to gain more insight into the ways in which teachers engaged in thoughtfully adaptive teaching. In Chapter III, the design of my study will be described.

CHAPTER III

RESEARCH DESIGN

The current study investigated various aspects of thoughtfully adaptive teaching and its impact on student outcomes. To study thoughtfully adaptive teaching and other components, an embedded mixed methods design was used—a design in which multiple data sets provided a supportive, secondary role in a study based primarily on teachers' thoughtful adaptations (Creswell & Plano-Clark, 2007). The primary source of data came from interviewing and observing teachers based on their adaptations. A secondary data source was students' understanding of reading comprehension prior to and after the study.

Case Studies

For this research project, case studies were the most appropriate way to study the complex issues of the classroom along with the thoughts and understanding teachers have about their instruction. Case studies have been cited by researchers as a significant way to gather information on a few subjects over a period of time (Stake, 2005; Stoecker, 1991). Case studies provide an in depth look at a specific phenomenon (Stake, 1995), such as thoughtfully adaptive

teaching. Although case studies lack the data to provide statistical generalizations, in this case they helped illustrate what two teachers were doing in their classrooms with adaptations. Stake (2000) referred to this as natural generalizations or the similarities revealed within the context of the two classrooms. In this study, I made analytic generalizations to explain the adaptations made, the rationales they reported, and their impact on student understanding. The study contains four case studies that were conducted in the spring of 2010 with third- and fifth-grade teachers.

Setting

The research was conducted in four reading classrooms—one third-grade and three fifth-grade—at Quail Hollow Elementary School. The school enrolled about 800 students, of which 70% were Caucasian and 30% were African American and Hispanic. The student population came from mostly middle-class and working-class homes (40%), with at least one parent educated beyond high school. I chose this site because I used to teach at this school. During my time there, I was given the liberty of adapting lessons and trying new ideas based on my coursework in graduate school. I established a strong rapport with administrators, faculty, staff, and students to the extent that I had an open access relationship to complete this study. This site was convenient because of my

relationship with the school and its nearby location to the university and my home (Creswell, 2003; Teddlie & Yu, 2007).

Participants

Teachers and students were purposefully sampled in this study (Creswell & Plano-Clark, 2007). I purposefully chose two teachers based on their experience and their passion for teaching. They were also selected because they each teach two blocks of reading instruction. By studying these teachers in each of their two class settings, my hope was to see the variations in their planning and teaching approaches—examining how they adapted within and between their classes. Students were also purposefully selected based on teacher input; from each class teachers selected three students (one low, one average, and one high performing in reading). Parents of students were informed of the purpose of this study and the benefits and risks associated with their students' participation. Parental permission was obtained and indicated by parent signatures on consent forms. Additionally, participants' signatures were obtained on assent forms to indicate students' willingness to participate. All teachers and students in this study have been provided pseudonyms.

Description of Teachers and their Students

Mrs. Cook had been teaching for 11 years. She obtained her master's degree in elementary education and was voted "Teacher of the Year" a few years prior to the study, an honor she attributed to her strong work ethic and her relationship with students. When I asked her about her teaching and relationship with students, she stated:

> I feel like I work extremely hard to have a personal relationship with my kids. I try to get to know their strengths and weaknesses as well as clearly letting them know that I have mine so it is nothing to become distraught over. It gives us pluses and minuses that we can then set goals to work towards. I also try to see my kids outside the school building. I enjoy going to their sporting events, piano recitals, martial arts, etc. I feel like they know that I care about the whole person rather than only the student by making this effort. I am not near as social at school with my colleagues and administrators as I once was. I think I have adopted the idea that I am here for the kids and to do that job, so nowadays, I work harder at that than anything else. This may not be viewed as positive, but I will say that my fifth grade team works extremely closely so as to meet the needs of all of our students. I value their opinions and help in areas that I am less comfortable teaching. I don't mind to tell them that I don't understand something and need help with it either. I have grown into that over the last 10 years. There were times I would have never admitted that, but making sure the kids learn is what has come to the forefront for me.

Mrs. Cook taught two blocks of reading to fifth graders. The first class was composed of an "average" group of students, all of whom passed last year's reading EOG except for one—12 females and 9 males—all Caucasian. Her

second class was composed of students who are struggling in either reading, math, or both—these students either didn't pass the reading EOG, math EOG, or both—14 males: 8 Caucasian, 3 Black, 2 Hispanic, and one multi-racial—and 9 females: 6 Caucasian, 2 Black, one multi-racial. A total of 13 from this class did not pass the EOG last year in reading.

Mrs. Powell had been teaching for over 15 years. She acquired multiple degrees in elementary education and special education and she is also certified to teach academically and intelligently gifted (AIG) students. She noted that her teaching has changed over the years:

> Instead of spending so much time on disciplining (like I did in my younger days), I try to avoid having to discipline by giving more positive feedback to the kids, keeping them more creatively and actively engaged (they have less time to act up)—and I now choose my battles. I also like for my kids to know that I never lock my door during the day so that they can come in to talk to me or retrieve an item without being rebuked for doing so. This is 'our' room, not 'my' room. We tend to get noisy at times in my class due to group activities, debates, and discussions, and I like it that way—A far cry from my younger days.

Mrs. Powell taught two blocks of reading to academically gifted (AG) students who mostly come from middle-to-upper class status—one third grade class and one fifth grade class. The third grade class consisted of 21 students—9 males and 11 females—all Caucasian with the exception of one multiracial

(Asian/white) and male Hispanic female (bilingual). This class consisted of students with various reading levels—QRI assessments revealed a range from third to upper sixth grade levels—one male received speech and who is also on ADHD medication and a female with a progressive neurological disease. Her fifth grade class consisted of 18 students—all Caucasian—and all scoring at or above sixth grade reading level on QRI assessments—one student received medication for ADHD.

Procedures

The study was conducted from February 11, 2010 until May 13, 2010 at Quail Hollow Elementary School. In the beginning of the study, pre-study interviews were collected from teachers and students. Each classroom was then observed during reading instruction one time each week. There were times when the observation schedule was modified due to inclement weather, field trips, and end of quarter testing. For each lesson, teachers were interviewed before and after their lessons. At the conclusion of the study, post study interviews were collected from students. The schedule for data collection is provided in Table 1 below.

Table 1

Data Collection Schedule

Date	Data Collection
February 11	Pre-Study Interview (All Teachers) Pre-Study Interview (All Students)
Week 1 February 16 & 18	Pre-Lesson Interview (Teacher) Lesson Observation Post Lesson Interview (Teacher)
Week 2 February 23 & 25	Pre-Lesson Interview (Teacher) Lesson Observation Post Lesson Interview (Teacher)
Week 3 March 2 & 4	Pre-Lesson Interview (Teacher) Lesson Observation Post Lesson Interview (Teacher)
Week 4 March 9 & 11	Pre-Lesson Interview (Teacher) Lesson Observation Post Lesson Interview (Teacher)
Week 5 March 16 & 18	Pre-Lesson Interview (Teacher) Lesson Observation Post Lesson Interview (Teacher)
Week 6 March 23 & 25	Pre-Lesson Interview (Teacher) Lesson Observation Post Lesson Interview (Teacher)
Week 7 April 6 & 8	Pre-Lesson Interview (Teacher) Lesson Observation Post Lesson Interview (Teacher)
Week 8 April 13 & 15	Pre-Lesson Interview (Teacher) Lesson Observation Post Lesson Interview (Teacher)
Week 9 April 20 & 22	Pre-Lesson Interview (Teacher) Lesson Observation Post Lesson Interview (Teacher)
Week 10 April 27 & 29	Pre-Lesson Interview (Teacher) Lesson Observation Post Lesson Interview (Teacher)
May 13	Post Study Interview (All Students)

Data Collection

I collected data using a variety of sources. The study began with a pre-study interview with teachers and students. Thereafter, each week I collected teachers' pre-lesson interviews, observed their lesson, and collected post-lesson interviews. The study concluded through the collection of post-study interviews with students. Below, I list each data source (Table 2), provide an explanation of each data source, and describe how these data sources helped answer the research questions.

Table 2

Data Sources in This Study

Points Examined	Data Sources
Teacher Vision	- Pre-study Interview
Adaptations made during planning	- Pre-lesson Interviews - Teacher Observations
Adaptations while teaching	- Teacher Observations - Post-lesson Interviews
Rationales for making adaptations	- Pre-lesson Interviews - Post-lesson Interviews
Students' change in understanding of reading comprehension	-Pre- and Post-study Interviews

Description of Data Sources

Pre-study interview (teacher). I conducted individual pre-study interviews to document information related to teachers' current instructional practices in reading, vision, and teaching context (see Appendix B). Specifically the pre-study interview allowed me to document the ways in which teachers identified themselves as being able to enact their vision, the obstacles they encountered when attempting to enact their vision, and how they adjusted their teaching in response to those obstacles. Documenting these aspects allowed for the relationship between their current instructional practices in reading and vision to be analyzed in terms of focus, range and distance. Portrait summaries were written based on teachers' pre-study interview. All pre-study interviews were audio-taped and transcribed for analysis.

Pre-study and post-study interviews (student). I conducted individual pre- and post-study interviews (see Appendix C) to document their changes in understanding of reading comprehension by comparing what they said in the pre-study interview to what they said in the post-study interview (as described in the data collection section). All pre- and post-study interviews were audio-taped and transcribed for analysis.

Pre-lesson interviews (teacher). Prior to each lesson, I conducted pre-lesson interviews (see Appendix D). The purpose of this interview was to document teacher planning, and whether their plans for the lesson changed in any way due to: a modification of school requirements, a modification in materials used, a modification from past lessons, or a modification of instructional strategies. If teachers adapted based on this criteria, I probed reasons for this change. All pre-lesson interviews were audio-taped and transcribed for analysis.

Lesson observations (teacher). Following pre-lesson interviews I observed teachers' reading instructional practices during whole group instruction (for protocol, see Appendix E). During the lesson I noted any changes in the lesson based on pre-lesson interviews. Because they did not have written lesson plans, I took extensive field notes for the duration of each lesson. After the lesson, I interviewed the teachers using my field notes to review their lesson.

Post-lesson interviews (teacher). Following the lesson, I conducted post-lesson interviews (see Appendix F) with teachers. The main purpose of these interviews was to verify on-the-fly adaptations and their rationales for modification. If I noted what appeared to be change during their instruction, I

would state, "I noticed that you did _____ during your instruction. Was that an adaptation?" If the teacher confirmed the adaptation, I probed further as to the rationale for that adaptation. All post-lesson interviews were audio-taped and transcribed for analysis.

Summary. In sum, data were collected by interviewing and observing teachers and students throughout the study. In the next section, I describe how these data sources were used to answer the research questions.

Measures

Planning adaptations and rationales. I conducted pre-lesson interviews for each of 10 lessons (see Appendix D). During this time teachers communicated their plans and whether their plans for the lesson changed in any way due to four specific obstacles: a modification of school requirements, a modification in materials used, a modification from past lessons, or a modification of instructional strategies. If teachers planned to adapt based on this criteria, I probed for reasons.

To collect rationales for adaptations during planning, teachers participated in pre-lesson interviews (see Appendix D). Teachers first verified whether or not they made an adaptation. If an adaptation was verified, I probed to document their rationales as to why the adaptation was made. For example,

during the pre-lesson interview, teachers provided a response to the question "Why did you make this change?" Their response was considered the rationale for the change they reported.

On-the-fly adaptations and rationales. To collect on-the-fly adaptations, I observed 10 whole group reading lessons for each classroom. All lesson observations were conducted at a time that each teacher designated. I noted any teacher action that might have been an adaptation (i.e. it wasn't discussed in planning) for later confirmation during the post lesson interview. Immediately following lesson observations, semi-structured interviews were conducted. For this research question the goal in the post lesson interview (see Appendix E) was to gain an understanding of different types and number of adaptations made on-the-fly.

Post-lesson interviews (see Appendix F) were used regarding teachers' rationales for on-the-fly adaptations. Teachers first verified adaptations that occurred while teaching, then offered a rationale for the change. The semi-structured interview protocol allowed me to probe as needed and encourage elaborated responses to better understand teachers' rationales for making adaptations.

Rationales for promoting vision and the understanding of reading comprehension. Rationales for adaptations promoting their vision and the understanding of reading comprehension were taken from pre- and post-lesson interviews. After a confirmed adaptation, teachers were asked to provide their rationale. In order for an adaptation to be categorized as promoting their vision or reading comprehension, teachers must have spontaneously reported that the adaptation was designed to promote their vision or reading comprehension.

Student outcome of understanding reading comprehension. Interviews directed towards studying students' understanding were administered before and after the study (see Appendix F). In preparing for these interviews, I chose a section entitled "Volcanoes" from a fourth-grade science textbook (Frank, 2000, pp. C18-C23) to measure students' understanding of reading comprehension. During pre- and post-study interviews, I used this text as a prompt to generate student responses. To examine students' understanding for reading comprehension, I adapted Duffy and colleagues' (1987) questionnaire. I asked the following questions during the pre- and post-study interviews, after opening the science text to a section on volcanoes:

1. *What is the first thing you do when you are given a text like this to read (i.e., what do you do before you read)?*

2. *What kinds of things do you do to help you understand when you are reading? What do you do if you don't understand?*
3. *What do you do after you are finished reading a text like this?*

Because I used the same book for both interviews, the pre-study interview served as baseline data relative to the post-study interview. Interviews were tape recorded and transcribed.

Relationship between adaptations and student outcomes. Finding a relationship between teachers' intentional adaptations designed to promote reading comprehension and students' demonstration of understanding of reading comprehension proceeded by comparing teachers' adaptations that promoted students' understanding of reading comprehension and students' demonstration of reading comprehension. The analysis provided the data needed to determine if there was a relationship between the two data sets.

Data Analysis

This section explains the procedures for data analysis for each research question. Some of the data collected were analyzed by me, while other sources of data were analyzed by the research team. The research team consisted of two doctoral students and me. The data were analyzed following data collection, May 15, 2010 – August 31, 2010.

Measures

Planning adaptations and rationales. The data collected during pre-lesson interviews were analyzed by the research team. In order for an adaptation teachers made during planning to be considered for coding, it must have also occurred during the teacher observation. During the pre-lesson interview teachers identified the adaptation as a change of one or more of the following: (a) modification of district or school requirements, (b) a modification in what the materials suggested to do, (c) how she has done this kind of lesson in the past, or (d) instructional strategies. Adaptations were coded the way in which teachers identified the adaptation. After these were coded and counted, I created a frequency count of the types of adaptations made during planning. This frequency count was used to tell how many and what types of adaptations during planning occurred more and less frequently.

The rationales teachers provided for adaptations during planning were also analyzed by the research team. During the pre-lesson interview, teachers provided a response to the question "Why did you make this change?" Their responses were considered the rationale for the change they reported (adaptation during planning).

The rationales were categorized based on the codes developed by Duffy and his colleagues (2008) (see Table 3). Three members of the research team were present to establish the codes for the rationales teachers provided. This analysis took place after all observations were completed. The following were used for coding the rationales.

Table 3

Rationales for Planning Adaptations

A	Objective not met
B	Challenge/ Elaborate
C	To teach a specific strategy or skill
D	To help students make connections
E	Uses knowledge of student(s) or classroom dynamics
G	Changes planned order of instruction
H	Anticipation of upcoming difficulty
I	To manage behavior
J	To manage time
K	To promote student engagement

A frequency count of the types of rationales was created for the adaptations made during planning. The frequency count showed how many

rationales were offered for adaptations made during planning and what types occurred more and less frequently.

On-the-fly adaptations and rationales. Teachers' on-the-fly adaptations were analyzed by the research team. When on-the-fly adaptations were verified by teachers, they were coded using the adaptation coding system developed by Duffy et al. (2008) in previous thoughtfully adaptive teaching studies (see Table 4).

Table 4

On-the-fly Adaptation Codes

1. Modifies the lesson objective
2. Changes by which objectives are met (e.g., materials, strategy, activity, assignment, procedures or routines)
3. Invents examples, analogy or metaphor
4. Inserts a mini lesson
5. Suggests a different perspective to students
6. Omits/inserts activity or assignment
7. Changes planned order of instruction

After these were coded and counted, a frequency count was created of the types of adaptations made while teaching. The frequency count showed how

many and what types of adaptations were made while teaching and which occurred more and less frequently.

The rationales teachers provided for on-the-fly adaptations were analyzed by the research team. Teachers verified on-the-fly adaptations that occurred during post-lesson interviews. Teachers then offered a rationale for the change. Like the coding for planning rationales noted previously (see Table 4), on-the-fly rationales were also coded using the rationale coding system developed by Duffy et al. (2008) in previous thoughtfully adaptive teaching studies. After these were coded and counted, a frequency count was created for the types of rationales offered for the adaptations made while teaching. The frequency count showed how many rationales were offered for on-the-fly adaptations and the types occurring more and less frequently.

Rationales promoting vision. In addition, rationales were categorized based in response to the teachers' visions in the post-lesson interview. In order for an adaptation to be considered to be related to teachers' vision, the rule was that the teachers' rationale must spontaneously state that it was related to their vision and there must be evidence from the observations that the adaptation related to the stated vision (strategy, skills, modeling).

Evaluating vision statements. Teachers' vision statements were interpreted from the transcribed pre-study interviews (see Appendix B). I intended to code the data using Hammerness' (1999) three dimensions of visioning—focus, range, and distance. *Focus* refers to "the center, or areas, of interest of the vision" (Hammerness, 1999, p. 34). The focus of vision statements will first be characterized as *clear* or *fuzzy*. I also created three sub-categories for focus—*instructional*, *dispositional*, or a *combination* of both. A teachers' vision was deemed *instructional* when the focus related directly to academic aims of instruction and *dispositional* when the focus related to student outcomes other than academic (i.e., global awareness, good citizenship, etc.).

Range refers to "the scope or extent of the focus" (Hammerness, 1999, p. 34). The range of vision statements was characterized as *narrow* or *broad*. For example, focusing on an individual in the classroom or a particular group of students would be considered *narrow*, and focusing on the community, school, or stretching beyond to include a school system would be considered *broad*.

Distance refers to "how close or how far vision is relative to what one is currently doing" (Hammerness, 1999, p. 35). The distance of vision statements was characterized as *close* or *far* relative to their current practice. Coding

distance came from two data sources, their responses in the pre-study interview and their actions observed in the classroom.

Although data on teacher visioning was collected, I was unable to evaluate using Hammerness' criteria because their statements were too general and lacked a specific focus. When I began looking at the data, it was clear that each teacher had multiple foci for their visions. In other words, because they had so many ideas they wanted to accomplish (focus), it was hard to evaluate how close they were to their visions relative to what they were doing in the classroom (distance). To effectively evaluate their vision statements according to Hammerness, I would have needed to chart all of the foci and independently measure the distance for each. The following paragraph gives an example of this conundrum.

Mrs. Cook wanted her students to become good, productive members of society. She also wants them to send her students to middle school with "a grander idea that they can do whatever they want to do." Next, she wanted them to realize how much they will have to work to accomplish these goals. Moreover, they needed to be critical readers, not reading everything as if "it is gospel" because they "really need to think about what they read." Finally, the needed to read "between the lines, "draw conclusions," and "make inferences."

She then worked on "drumming into them main idea and parts of the story, figuring out and that type of thing." The ultimate goal was for them then to "take all of this information and all these clues" and "come up with something that's not in the text." Included in her comments were twelve foci. Without further interviews, it was impossible to code these foci according to Hammerness' criteria. As a result, I only looked at teachers' spontaneous comments regarding their adaptations: then, I looked at the focus and its relationship to their decision to modify their plans or teaching.

Rationales promoting reading comprehension. In order for an adaptation to be categorized as promoting reading comprehension, teachers must report that the adaptation was designed to promote reading comprehension. In other words, teachers needed to provide a rationale where they spontaneously mentioned reading comprehension or strategy use.

Student outcomes of understanding reading comprehension. Interviews directed towards studying students' understanding of reading comprehension were administered before and after the study. Because I used the same book for both interviews, the pre-study interview served as baseline data relative to the post study interview.

To evaluate their responses, I listed their responses under three categories: the strategies they reported *before*, *during*, and *after* the reading activity—much like Duffy (2009) organized the reading process. I used a frequency count to show whether a change occurred in the number of reported responses by comparing the data from both interviews. I counted the variety of strategies they said they would use during the pre-study interview and compared them with the variety of strategies they said they would use during the post study interview. For example, In Tony's pre-study interview, he stated before the reading activity he would, "See how long it is and look at the pictures to see what I'm reading about." This counted as two reading strategies. In his post-study interview, he stated before the reading activity he would, "Look at the length, look at the pictures, and see what the vocabulary words were." This counted at three reading strategies. When evaluating their change, there were too few occurrences to use a parametric analysis or a Chi-Square (Howell, 2010). Thus, if the frequency of their post-study responses doubled relative to their pre-study responses, I counted it as a change. Based on that criterion, when comparing the number of Tony's responses between interviews, this was not considered a change in understanding.

Relationship between adaptations and student understanding. Finding a relationship between teachers' intentional adaptations designed to promote reading comprehension and students' demonstration of change of reading comprehension was accomplished by comparing the data analysis from teachers' rationales and student outcomes.

If the data showed that the teachers' adaptations were not designed to promote reading comprehension, then there would be no relationship. If, however, results indicated that there were adaptations designed to promote reading comprehension and students showed a change in understanding, then an attempt was made to identify a relationship between teachers' adaptations and students' change in understanding. Therefore, a relationship was determined when teachers' said they adapted to promote reading comprehension and students showed a change in reading comprehension.

Conclusion

This study attempted to extend previous studies on thoughtfully adaptive teaching. Recent studies have questioned how teachers adapt their literacy instruction, why they make these adaptations, and the extent to which their adaptations are thoughtful (Duffy et al., 2008; Miller et al., 2006). Although these studies were helpful in noting that some teachers were teaching in thoughtfully

adaptive ways, their results showed that most teachers' thoughtful adaptations were infrequent and at a low-level. If researchers are to continue to talk about thoughtfully adaptive teaching, then we must show how it impacts learning.

To date, thoughtfully adaptive teaching research lacks the evidence for the talk it receives. We must, however, persist to find its fruit. I wanted to answer the question, "Does thoughtfully teaching really matter?" By studying teachers' visions, I hoped to see the world through their eyes and get to the heart of the matter, through student outcomes. By looking at high potential teachers, I hoped to see that their experience and wealth of knowledge enables them to adapt under various situations. For this reason, this study extended recent thoughtfully adaptive teaching studies by not only examining adaptations that occur during instruction, but during planning as well. Finally, and most importantly, if thoughtfully adaptive teaching is to receive any merit, it must have a relationship with student outcomes. This study extended previous thoughtfully adaptive teaching research by investigating its impact on students, specifically, the ways in which teachers' adaptations influenced students' understanding of reading comprehension.

CHAPTER IV

RESULTS

This study examined teachers' adaptations during planning and instruction for whole-group reading lessons, their visions for teaching, and students' understandings of reading comprehension prior to and after the observations. In this chapter, I answered each research question by using a set of four case studies. Because each teacher taught two classes, this chapter was divided into four cases. I first examined Mrs. Cook's two classes and then provided a cross-case analysis of her classrooms. Likewise, I then presented Mrs. Powell's in the same fashion. I concluded the analysis by comparing both teachers across their two classrooms.

Mrs. Cook

Mrs. Cook taught two, fifth-grade reading classes. Her classes were arranged according to students' reading ability based on their previous year's EOG reading scores. In her morning class—named the *higher achieving class*—students exhibited average to above average reading ability. In her afternoon class—named the *lower achieving class*—students exhibited below-average to

average reading ability. Classroom observations focused specifically during whole-group instruction where Mrs. Cook taught through shared-reading activities and classroom discussion. Two case studies from her classes are featured below.

Vision for Teaching (Portrait)

> I want kids to become good, productive members of society and so my biggest thing is I try and send kids from the elementary school to the middle school with a grander idea that they can do whatever they want to do. They just have to work hard to accomplish it. Our reading time gets at this. I want them to be able to be a critical reader so that anything they read, it's not that they're going to take it always as the gospel but so that they can evaluate it. I really want them to be able to think about what they read. It goes back to being thinkers. I want them to become analyzers and thinkers about being able to differ from good from bad and positive from negative and feel they're making good choices in life.

Case #1: Mrs. Cook's Higher Achieving Class

Planning adaptations. Mrs. Cook adapted 15 times over a period of 10 lessons, averaging 1.5 planning adaptations per lesson with a maximum of 3 and a minimum of 0. As noted in Table 5, Mrs. Cook's adaptations for this class were spread somewhat evenly across four categories: *district/school requirement* (*n*=4; 27%), *materials* (*n*=3; 20%), *previous lesson* (*n*=3; 20%), and *instructional strategy* (*n*=5; 33%).

Table 5

Mrs. Cook's Planning Adaptations (Higher Achieving Class)

Code	**Lesson**										**Total**	**%**
	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10		
District/ School Requirement	1			0				1	1	1	4	27%
Materials		1		0			1	1			3	20%
Previous Lesson		1		0		1			1		3	20%
Instructional Strategy	1	1	1	0	1					1	5	33%
Total	2	3	1	0	1	1	1	2	2	2	15	

Her most common planning adaption was a change in *instructional strategies*, accounting for one-third of her modifications. An example was when Mrs. Cook was teaching a lesson on inferencing using Chris Van Allsburg's book entitled *The Wretched Stone*. She explained that usually she has to walk students through this book, and explicitly point out the underlying meanings of the text. For this class, however, she planned to minimize her role of providing the information, "This one is going to be different because I don't think I'll have to do quite as much leading and let them inference on their own" (Lesson 1a1).

Her second most common planning adaption was a change in *district/school requirements*. An example came from the same lesson when Mrs.

Cook decided to use Allsburg's picture book. The district supplies basal readers for each grade level to be implemented in the classrooms. Teachers were expected to use this text for instruction, but Mrs. Cook chose not to use the basal. In her words, "They want us doing at least one basal story every so often and I do that but today I'm supplementing it with these types of picture books" (Lesson 1a1).

The final subgroups of Mrs. Cook's planning adaptations—modifications to what the *materials* suggest to use and modifications based on *previous lessons*—each accounted for 20% of her total planning adaptations for this class. One way in which she adapted a lesson relative to what her materials suggested to use was when she was reviewing reading comprehension strategies for the EOG. She had been given a pacing guide and test booklets to use each day in preparation for the test. She used the pacing guide, but decided not to use the test booklets for this class. Instead, she used the chapter book they were currently reading, *Among the Hidden* by Margaret Peterson Haddix, to teach the specific strategy. In her words, "I'm trying to relate it to the novel that we're doing in whole group, '*Among the Hidden*.' It is a modification because what they give me is more prescribed with more test taking skills" (Lesson 1a8).

One way in which she adapted based on *previous lessons* was when she was using the EOG practice booklets to teach appositives. Usually she had each student read and answer the questions independently for a grade. This time, students read and answered the questions independently. Then in small groups, they discussed their answers in addition to creating appositives through writing sentences and sharing them. For this adaptation, Mrs. Cook explained:

> For today it's going to first be independent practice and then they will go over the appositives in groups. I guess in the past I've used them for independent practice but used it more as an assessment or test to see if they can recognize and understand them. I'm not formally assessing them today. They'll go over these in groups and then create their own (Lesson 1a9).

Rationales for planning adaptations. Mrs. Cook provided a rationale for each of her planning adaptations. She primarily used four different rationales for her adaptations during planning (see Table 6). About 80% of her rationales related to her efforts to use her *knowledge of students or the classroom dynamics to alter her instruction* (n=7; 47 %) and to *teach a specific skill or strategy* (n=5; 33%). The remaining two categories: *to promote student engagement* (n=2; 13%) and *anticipation for an upcoming difficulty* (n=1; 7%) accounted for her remaining total.

Within her total rationales, she reported that her adaptations promoted reading comprehension (n=10, 67%) and her vision (n=1, 7%).

Table 6

Mrs. Cook's Rationales for Planning Adaptations (Higher Achieving Class)

Code	Lesson										Total	%
	L1	**L2**	**L3**	**L4**	**L5**	**L6**	**L7**	**L8**	**L9**	**L10**		
Objective not met											0	0%
Challenge/ Elaborate											0	0%
To teach a specific strategy or skill		1				1			2	1	5	33%
To help students make connections											0	0%
Uses knowledge of student(s) or classroom dynamics to alter instruction	2	1	1		1		1	1			7	47%
Checking Student Understanding											0	0%
Anticipation of upcoming difficulty		1									1	7%
To manage behavior											0	0%
To manage time											0	0%
To promote student engagement								1		1	2	13%
Total	2	2	1	0	1	1	1	1	2	2	15	

Her most common rationale—accounting for almost half of her planning rationales—was using the *knowledge of students or classroom dynamics to alter instruction.* For example rather than using a test booklet in preparation for the EOG, she wanted to continue with their chapter book. When I ask her why, she provided this rationale:

> I just think they're ready and I don't think I need to focus on all of the test-type stuff. I think with these kids, if they understand and if they can infer through a novel then they can infer on a one-page reading passage. (Lesson 1a7)

On another occasion, she was concerned that her students were overly worried about the EOG. While she wanted her students to be prepared for the upcoming test, she did not want to use the testing materials that seemed to produce student anxiety. Instead, she adapted based on the dynamics of the classroom. She provided this rationale for continuing to work from their chapter book, "I'm trying to make it less pressure about test, even though I stress that and tie it to the book" (Lesson 1a8).

Another common rationale—accounting for one-third of her total—was *to teach a specific strategy or skill.* For example, one planning adaptation involved teaching how students could "tackle" difficult words they encounter. In a

previous lesson, Mrs. Cook noticed that many students were not successful in understanding a particular chapter in their chapter book due to difficult words. In response to this, she decided to open her lesson by modeling how she strategically tackles difficult words. This was her rationale for modifying the lesson:

> I want them to be able to tackle the vocabulary words using different strategies to understand what it means. I want them to use strategies to tackle vocabulary. I also want them to be able to use comprehension strategies, so they can learn to independently answer some their confusing questions from yesterday. (Lesson 1a6)

On another occasion, Mrs. Cook adapted her planning by integrating multiple comprehension strategies, in addition to teaching the strategy—using a graphic organizer—required by the district. She wanted to integrate different strategies and provided this rationale by stating:

> All they've asked me to do is work on the graphic organizer, how to fill in a box and because this morning class is proficient or above average in that I am also focusing more on the inferencing and drawing conclusions. This way, I can integrate reading strategies and test taking strategies. (Lesson 1a10)

Some of Mrs. Cook's less-frequent rationales involved *promoting student engagement* and *anticipating and upcoming difficultly*. An example of promoting student

engagement was when she, again, tried to modify her lesson to make practicing for the EOG more interesting for her students. Because the days before the EOG can be constraining for both students and herself, she continuously deviated from the testing practice books. She stated:

> I just feel like the more I hound, hound, hound, about let's practice doing questions, by the time they get to the test they'll do worse so I'm trying this year to see if I do less of the test questions but more strategy focused that they won't get burned out and so tired of reading and answering questions. (Lesson 1a8)

Her lone rationale for *anticipating an upcoming difficulty* came when she adapted a lesson on similes. Rather than teaching an isolated lesson on similes (using a worksheet or textbook) she instead modified the lesson in conjunction with a previously read chapter book. She felt that introducing similes in this fashion would have made the transition into teaching this skill less problematic. She said:

> I thought this would be an easier way to introduce it through literature. A lot of times skills make more sense when you connect it to something they're familiar with. So with the literature, I can eliminate a lot of extra factors if I know that they already know the text. (Lesson 1a2)

Within her total rationales, on one occasion Mrs. Cook reported that she adapted to promote her vision. She used *The Wretched Stone* because she knew

the students would be interested in this story rather than using the basal reader and felt that the inferences drawn from the book aligned with her vision. She said:

> I'm using this because the kids enjoy them a whole lot more than the basal stories. This book definitely goes along with my vision of trying to be a productive member of society and I think it will be evident when I read the story. You'll be able to see that I don't want them to just be a bunch of apes walking around. It definitely goes along with my vision. (Lesson 1a1)

On-the-fly adaptations. Mrs. Cook made 78 on-the-fly adaptations across 10 lessons in her higher achieving classroom for an average of 7.8 per lesson with a maximum of 16 and a minimum of 3. When looking at her more-frequent adaptations, the Table 7 shows that two types accounted for almost 70% of her on-the-fly modifications: *changes the means by which objectives are met* (n=36, 46%) and *invents examples, analogies or metaphors* (n=18, 23%). Her less-frequent on-the-fly adaptations included: (a) *modifies lesson objective* (n=4, 5%); (b) *inserts a mini lesson* (n=2, 5%); (c) *suggests a different perspective to the lesson* (n=7, 9%); (d) *omits or inserts an activity* (n=8, 10%); and (e) *changes planned order of instruction* (n=3, 4%).

Table 7

Mrs. Cook's On-the-fly adaptations (Higher Achieving Class)

	Lesson											
Code	**L1**	**L2**	**L3**	**L4**	**L5**	**L6**	**L7**	**L8**	**L9**	**L10**	**Total**	**%**
Modifies Lesson Objective				1	1				1	1	4	5%
Changes means by which objective is met	6	3	1	5	7	4	4	4	1	1	36	46%
Invents examples, analogies, or metaphor	5	2	1	2	3	1		1		3	18	23%
Inserts a mini-lesson						1			1		2	3%
Suggests a different perspective to lesson	4					2		1			7	9%
Omits or inserts activity	1	1	3		1	1				1	8	10%
Changes planned order of instruction		1				1				1	3	4%
Total	16	7	5	8	12	10	4	6	3	7	78	

Her most common on-the-fly adaptation—*changes means by which her objective was met*—was observed at least once in every lesson. This modification entailed changing materials, teaching strategies, assignments, procedures, or routines. Mrs. Cook made this type of adaptation when she was teaching a lesson on personification because she wanted them to see how this skill could enhance their reading and writing. Towards the end of the lesson, students began creating examples of personification. As students began figuring out how to create them, they became very excited and tried to outdo their classmates. Immediately Mrs. Cook organized them into groups of competition where her students voted for the most creative example of a personification. This is how she described this adaptation:

> Anna said we should have a competition and this class is way competitive. They're extremely competitive so as long as it's a healthy competition I'll foster it. What trips me out is some of the ones they chose to be the best ones, I would have never chosen. I had just planned on them pairing and sharing but once Anna said let's do a bigger one, it allowed for them to hear more than just one person's. So I felt like that was a great idea. (Lesson 1a5)

Another more-frequent on-the-fly adaptation was *invents examples, analogies, or metaphor*—occurring in approximately 1 out of 4 adaptations. One example of this type of adaptation came from the same lesson described above

on personification. Mrs. Cook provided an example from a *Harry Potter* book to help students who were struggling to understand the concept of personification. This is how she described this adaptation:

> Some of the students did still not understand personification, Taylor in particular. I have like three boys in this room who are Harry Potter fans and it's awfully hard to keep their focus. So anything I can constantly reaffirm with Harry Potter or recreate . . . they love the movies. Some of them haven't even read the books but they love the movies so if I can recreate that scene in their head they know exactly what I'm talking about. They can follow the lesson or just stay with me better. And I have to do that constantly with sweet Taylor. (Lesson 1a5)

Mrs. Cook also made less-frequent on-the-fly adaptations. Some examples of these were when she *suggested a different perspective* or *inserted/omitted activities* in her lessons. She suggested a different perspective to her students when they were reading a chapter from "Among the Hidden" that dealt with human population control. To provide a clearer understanding, she offered a different perspective by getting them to imagine if the happenings in this chapter book were really happening in their town. She was able to ignite a powerful class discussion simply by saying, "I want you to take a step away from this book and imagine . . ." (Lesson 1a6). Another less-frequent on-the-fly adaptation—"omitting an activity"—occurred when Mrs. Cook began a lesson on similes

using the book entitled *Blood on the River* by Elisa Carbone. She soon realized that all of her students already understood the concept of similes, so she discontinued that lesson and inserted a lesson on idioms that she was going to teach later that week. Mrs. Cook described this adaptation by stating:

> So since I didn't need to teach similes any further, it was a good lead-in to give them a quick picture of what we're going to be doing later with exploring idiom dictionaries and then being able to share three of their favorites which I'll do tomorrow and then draw a picture of the literal versus what it truly means. So that was not planned but that extra ten minutes gave them a chance to kind of preview the idiom dictionary. (Lesson 1a3)

Rationales for on-the-fly adaptations. Mrs. Cook provided a rationale for each of her on-the-fly adaptations. Examining Table 8, the frequencies in which she provided certain rationales can be grouped into three categories. The first category represented her most frequent rationale, *helping students make connections* (n=24, 31%). The second category represented rationales based on *the knowledge of student(s) or classroom dynamics to alter instruction* (n=18, 28%) and *to teach a specific strategy or skill* (n=14, 18%). The third category represented the remaining rationales less frequently used: (a) *objective not met* (n=1, 1%); (b) *challenge/elaborate* (n=6, 8%); (c) *anticipation of upcoming difficulty* (n=6, 8%); (d) *to manage behavior* (n=3, 4%); (e) *to manage time* (n=4, 5%); and, (f) *to promote student*

engagement (n=2, 2%). She did not report a rationale that involved *checking for student understanding*. Within her total rationales, she reported that her adaptations promoted reading comprehension (n=33, 42%) and her vision (n=3, 4%).

Table 8

Mrs. Cook's Rationales for On-the-fly Adaptations (Higher Achieving Class)

	Lesson											
Code	**L1**	**L2**	**L3**	**L4**	**L5**	**L6**	**L7**	**L8**	**L9**	**L10**	**Total**	**%**
Objective not met										1	1	1%
Challenge/ Elaborate	2	1		1		2					6	8%
To teach a specific strategy or skill	2	1		1		1	1	4	1	3	14	18%
To help students make connections	3	3	2	4	7	1	2	1		1	24	31%
Uses knowledge of student(s) or classroom dynamics to alter instruction	6		3	2	1	3		1	1	1	18	23%
Checking Student Understanding											0	0%
Anticipation of upcoming difficulty	3				1	1	1				6	8%
To manage behavior		1			2						3	4%
To manage time					1	1			1	1	4	5%
To promote student engagement		1				1					2	2%
Total	16	7	5	8	12	10	4	6	3	7	78	

The first category—*to help students make connections*—accounted for nearly one-third of her total rationales. One example was when her class was reading and discussing Luke's character from *Among the Hidden.* During her discussion, Mrs. Cook tried to get the students to understand Luke's sheltered upbringing due to his parents hiding him from public. She wanted them to connect to Luke's character to further their comprehension. She provided this rationale:

> I had not planned on talking about that but I have to keep bringing them back to the fact that Luke is not a kid just like them. Luke is a kid who has had such a sheltered life and has had none of the experiences that they have had. It's hard for them to put themselves in Luke's shoes so I try to end each day with coming back to 'Remember, Luke has never had a conversation with anybody except his family.' That's hard to think of, but essential for them to realize if they're really going to understand the story. (Lesson 1a7)

The second category represented moderately used rationales: *the knowledge of student(s) or classroom dynamics to alter instruction* and *to teach a specific strategy or skill.* An example when Mrs. Cook made an adaptation based on her students' knowledge/classroom dynamics was when she explained to the students that sometimes the inferences they made were "clouded" do to their emotions. She had this conversation because she noticed that some students were drawing conclusions based on how they felt, and not based on the facts in

the book. This apparently also happened a few weeks earlier when they read *Blood on the River* in social studies. She provided this rationale:

> We haven't talked a whole lot about how our feelings will change inferences, but their feelings were taking over like they did in social studies. And because their feelings completely took over with 'Blood on the River' that they wanted Captain John Smith to come back to Jamestown and he doesn't. He doesn't return and so their feelings of what they had hoped would happen don't at all occur. And so I just found a teachable moment to be able to say, 'Here's where our feelings can cloud our inference.' (Lesson 1a1)

An example when she adapted to *teach a specific strategy or skill* came from the same lesson when she was trying to get her students to be more specific about their inferences, rather than using more general inferences. In particular, the students were struggling to grasp what the stone symbolized in book "The Wretched Stone." Mrs. Cook stopped to discuss their strategy use and tried to get them to think more specifically on the stone's representation after a student gave a vague answer. She provided this rationale for the adaptation:

> The student said the island and the stone were bad luck charms and I said 'but what could the bad luck charm represent? What is that bad luck charm?' They want to answer in a more general form. I guess sometimes I promote that because I'll say I want you to think of the big idea versus the specific answer of a television. Technology may be the big idea so then I'm constantly trying to refocus them. (Lesson 1a1)

The third category represented her less-frequently reported rationales. A sample of rationales in this category included: *to challenge or elaborate, to anticipate an upcoming difficulty,* and *to manage time.* Below is an example of each.

An example when she adapted *to challenge her students* was when she decided to have a discussion during their reading from *Among the hidden*. She wanted to challenge them to "think outside the book." Noticing that sometimes her students would get wrapped into thinking that the happenings in the book were strictly fictional she posed a question for them to elaborate through discussion. This was her rationale for challenging them with this question:

> The question was 'do you think that there is ever any justification for population control?' And I knew if I just simply asked that question they would still only be thinking about the book, but what the question is asking is for real life so I had to try and bring them out of the book and now let's have a discussion that just pertains to society. Sometimes that's hard for them to do. (Lesson 1a6)

An example when she adapted *to anticipate an upcoming difficulty* came from the same lesson from *Among the Hidden*. Mrs. Cook questioned her students, "Have you ever responded to your brother or sister in a negative way?" This led to a discussion about family relationships. From my perspective, I thought she was trying to get them to make connections to the text. Based on

her post-lesson interview, however, her rationale provided a different purpose. She said:

> I had not planned on talking about that but then it allowed me to tie in and say I want you to take note of the relationship between these brothers because this is going to be something to impact them later. So it kind of just led into a good make sure they were keeping track of it for future chapters. (Lesson 1a6)

An example when she adapted *to manage time* was in the lesson from *Among the Hidden* when she wanted to end the session by reviewing comprehension questions with the whole-group. She thought of a more efficient way to do this by having them work in pairs, while she walked around the room to monitor their progress. She stated:

> I planned on doing a group discussion but I realized time was falling away from us so I had them in pair-share groups for several of these questions because I knew they would know the answers. Now there were a couple questions that later I would call on a kid to say, 'what did you all talk about,' because I knew some folks would need some reassurance to see what they said was correct. (Lesson 1a6)

Within her total rationales, Mrs. Cook reported that she adapted to promote her vision three times during two separate lessons. She promoted her vision during *The Wretched Stone* lesson when students began making comments about the

importance of money. She agreed with their comments, but decided to stop the lesson to discuss the importance of money. She provided this rationale:

> This was the first year I had ever gotten that and it seems as though these kids look at material things and they will say money a lot of times. 'All I want to do is make a lot of money,' and they are stuck on money with a lot of the lessons that we teach. And going back to my vision of I want you to be a productive, good citizen, you can't focus your whole life on money. I want you to be brilliant and make a bunch of money. I really do but that can't be your focus when you're ten. (Lesson 1a1)

During a separate lesson, she was reviewing for the EOG test by reviewing how cause-and-effect strategies could be used when reading. The lesson turned from teaching comprehension strategies to a lesson about moral decision making. They discussed how their actions could result in positive and negative consequences. She provided this rationale for adapting the lesson:

> This group is smart but they will make silly choices or they will make unwise choices so rather than just focus on the content and comprehension I thought let's just change it up and talk a little bit about why did you choose to make that decision, what could be the effect of it; positive or negative. With my vision, I want them to be good citizens. I want them to be good members of society and sometimes we focus so much on just reading and comprehending, we leave out whether or not that was a good decision or a bad decision. (Lesson 1a10)

Student outcomes. In this section I summarized students' change in understanding first at the class level, then at the student level. At the student level, I also categorized the type of change and provided excerpts from their post-study interviews. When evaluating their change, there were too few occurrences to use a parametric analysis or a Chi-Square (Howell, 2010). Thus, if the frequency of their post-study responses doubled relative to their pre-study responses, I counted it as a change.

Based on that criterion (see Table 9), a doubling of responses occurred in four out of nine comparisons. Taylor showed a change *after* the reading activity, Anna showed a change *before*, *during*, and *after* the reading activity, and Chandler showed a change *after* the reading activity. Thus, the average achiever showed a doubling of responses for each reading phase.

Taylor revealed two new reading strategies for the *after* phase. He stated he would "do another activity" by reading another book and "answer questions" at the end of the reading or possibly take an AR Test.

For the *before* reading phase, Anna said she would, "make some predictions about what I think the book or section is about," and scan the book by "looking at the pages." For the *during* phase, she replied, "I'll look at the vocabulary to figure it out," and "I would look at all the little captions that are by

the pictures." For the *after* reading phase, she showed a change by noting, "I'd read another book," "I'd do some review questions," and "If I didn't get something then I'd make sure that I find where they were and I'd read them over and over until I got them."

Table 9

Response Frequency by Student (Mrs. Cook's Higher Achieving Class)

Student	Before		During		After		Total	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Taylor (High Achiever)	4	3	4	5	2	4	10	12
Anna (Average Achiever)	1	3	2	4	1	3	4	10
Chandler (Low Achiever)	3	4	1	1	1	2	5	7

Chandler said that she would focus on vocabulary *after* the reading activity, "I'd go back and look at the vocabulary maybe to know what they mean since it goes along with the book."

Summary. In sum, for her higher achieving class Mrs. Cook adapted 15 times across 10 lessons during planning, mostly modifying *instructional strategies*. She most often reported that her planning adaptations were due to teaching a *specific strategy or skill*, or using the *knowledge of student(s) or classroom dynamics to*

alter instruction. She made 78 on-the-fly adaptations, the majority of them by *changing the means by which objectives were met* and *inventing examples, analogies, and metaphors*. She most often reported that her on-the-fly adaptations were due to *helping students make connections, teaching a specific strategy or skill, or using the knowledge of student(s) or classroom dynamics to alter instruction.* Within her total adaptations, both when planning and on-the-fly, 46% were designed to promote reading comprehension and 4% were designed to promote her vision. Based on the doubling rule for students' change in understanding of reading comprehension, students showed a change in 5 of 9 possible cells when participating in the pre and post-study reading activity. Their change in understanding occurred somewhat randomly, making it difficult to attribute their growth to specific adaptations.

Case #2: Mrs. Cook's Lower Achieving Class

Planning adaptations. Mrs. Cook adapted 13 times over a period of 10 lessons, averaging 1.3 planning adaptations per lesson with a maximum of 2 and a minimum of 0. Based on the frequency of adaptations (see Table 10), two categories immerged—more-frequent and less-frequent. Her more-frequent adaptations (accounting for more than 80%) were modifications from a "previous lesson" (n=8, 61%) and a change in what the "materials" suggest to do (n=3, 23%).

Her less-frequent adaptations consisted of the remaining adaptations: a change in "district/school requirements" (n=1, 8%); and a change in "instructional strategies" (n=1, 8%).

Table 10

Mrs. Cook's Planning Adaptations (Lower Achieving Class)

	Lesson											
Code	**L1**	**L2**	**L3**	**L4**	**L5**	**L6**	**L7**	**L8**	**L9**	**L10**	**Total**	**%**
District/ School Requirement	1						0				1	8%
Materials		1				1	0	1			3	23%
Previous Lesson			1	1	2		0	1	2	1	8	61%
Instructional Strategy		1					0				1	8%
Total	1	2	1	1	2	1	0	2	2	1	13	

Her most common planning adaption was a change related to *previous lessons*, accounting for more than one-half of her modifications. An example of this adaptation was when she was preparing her students for the EOG by reviewing and assessing their use of "comparing and contrasting." Unlike lessons like this in the past, Mrs. Cook wanted this lesson to be highly structured with minimal discussion. She specifically wanted them to use the practice workbook and review the questions. She said:

> I plan to not get off task near as much as I usually plan for a lesson like this. This afternoon lesson has to be a bit more structured and focused. I need for them to understand the point of the lesson, so using the practice book verbatim is a way to eliminate distractions. (Lesson 1b8)

Another example when she adapted from a *previous lesson* was when she wanted to introduce idioms. In her higher achieving class she accomplished this by using the book *Blood on the River*. For her lower achieving class, however, she decided to provide examples rather than having the students to find them in the book. She said:

> I had wanted to try to introduce it the same way with *Blood on the River*, talking about it this morning, but this class being that it's been probably four hours since they had that class and I know that retention is an issue, I don't know that I'll be able to go there. (Lesson 1b3)

Her second most common adaptation was a change in what the *materials* suggest to use, approximately 1 out 4 total adaptations. An example of this adaptation was when her lesson focused on predicting strategies. Rather than using EOG test booklet to assess prediction strategies, she used the back of a chapter book to show how predicting can be a useful strategy. This was her explanation of this adaptation:

> I don't want to have too much of let's do some worksheets that go with this book. They get so drowned out by having to do worksheets that they forget to enjoy the purpose of using these strategies. So I am changing what our materials suggest us to use. (Lesson 1b6)

From her less-frequent adaptations she only reported one instance when she adapted due to either a "district/school requirement" or an "instructional strategy."

Rationales for planning adaptations. Mrs. Cook provided a rationale for each of her planning adaptations. Her rationales were spread somewhat evenly across seven descriptors (see Table 11), and were organized in two categories—more-frequent and less-frequent. The more-frequent category consisted of four rationales: (a) *uses knowledge of student(s) or classroom dynamics to alter instruction*, (n=3, 23%); (b) *to promote student engagement*, (n=3, 23%); (c) *anticipation of upcoming difficulty*, (n=2, 15%); and (d) *to manage time*, (n=2, 15%). The less-frequent category consisted of three rationales: (a) *to teach a specific strategy or skill*, (n=1, 8%); (b) *checking student understanding*, (n=1, 8%); and (c) *to manage behavior*, (n=1, 8%). The remaining descriptors were not reported as a rationale for planning adaptations. Within her total rationales, she reported that her adaptations promoted reading comprehension (n=2, 15%), but did not adapt to promote her vision.

Table 11

Mrs. Cook's Rationales for Planning Adaptations (Lower Achieving Class)

Code	Lesson										Total	%
	L1	**L2**	**L3**	**L4**	**L5**	**L6**	**L7**	**L8**	**L9**	**L10**		
Objective not met											0	0%
Challenge/ Elaborate											0	0%
To teach a specific strategy or skill		1									1	8%
To help students make connections											0	0%
Uses knowledge of student(s) or classroom dynamics to alter instruction		1		1				1			3	23%
Checking Student Understanding					1						1	8%
Anticipation of upcoming difficulty	1				1						2	15%
To manage behavior										1	1	8%
To manage time									2		2	15%
To promote student engagement			1			1		1			3	23%
Total	1	2	1	0	2	1	0	1	2	1	13	

Almost one-fourth of Mrs. Cook's reported rationales had to do with *using the knowledge of students, or classroom dynamics to alter instruction*. As noted earlier in the planning adaptations section, she wanted her lessons more structured for

her lower achieving class because she thought this would be a more effective format for these students. She provided this rationale for this structure:

> There are kids that need me to stay focused on one topic rather than branch out and cover six different topics. In the morning class I can do that and people can follow me. In my afternoon class they really can't. Things have to be more black and white in the afternoon. (Lesson 1b8)

Promoting student engagement was equally important, consisting of one-quarter of her reported rationales. As explained in the previous section, Mrs. Cook adapted a lesson on idioms by providing examples rather than having the students to find them in the book like her higher achieving class because she predicted this way of introducing idioms would be more effective. She provided this rationale:

> The reason I put the idioms up on the board is because when they come in during that transition time, a lot of times they'll look right up on the board to see what we are going to do today. I put some real interesting ones up there like get out of my face, get real; things that I knew would catch their attention and they would think oh my gosh, that's kind of crazy. (Lesson 1b3)

The remaining rationales in the most-frequent category—*anticipation of upcoming difficulty* and *to manage time*—accounted for one-third of her rationales. An example of anticipating an upcoming difficulty was when she wanted her

students to read a selection from an EOG practice book independently. Before the lesson she decided that she wanted to read the selection together as a class (shared reading) because she thought the text was too difficult. When I asked her why she changed to a shared reading activity, she responded:

> I want to promote some success. This selection has some tougher vocabulary for this class and we will read it together. They will answer eight questions by themselves, several of them focusing on inferences. I want to make sure they understand how to inference and to do that I think we'll need to read it together to eliminate other problems. (Lesson 1b1)

An example when Mrs. Cook adapted *to manage time* was when she was planning a lesson on appositives. She thought this lesson might take longer to teach to this class than with her morning class. Because she felt this way, she eliminated some extra activities compared to her lesson for the higher achieving class. She provided this rationale:

> This group is just not going to have enough time to do extra things. I won't be able to let them write their own. I won't be able to let anybody share their own, their creative side of it. I really don't foresee any of that happening. I know for sure that I'm going to modify how many examples we have to do together. No way will I have the same amount of time. (Lesson 1a9)

Mrs. Cook's less-frequent rationales—*to teach a strategy or skill*, *checking for student understanding*, and *to manage behavior*—accounted for the remaining reported rationales. She reported each of these rationales only one time.

On-the-fly adaptations. Mrs. Cook made 44 on-the-fly adaptations across 10 lessons in her lower achieving classroom for an average of 4.4 per lesson with a maximum of 8 and a minimum of 1. When looking at her more-frequent adaptations, the Table 12 shows that two types accounted for almost 75% of her on-the-fly modifications: *changes the means by which objectives are met*, (n=20, 45%) and *invents examples, analogies or metaphors*, (n=13, 30%). Her less-frequent on-the-fly adaptations, included (a) *modifies lesson objective*, (n=5, 11%); (b) *suggests a different perspective to the lesson*, (n=2, 5%); (c) *omits or inserts an activity*, (n=3, 7%); and (d) *changes planned order of instruction*, (n=1, 2%). She did not adapt by *inserting a mini-lesson*.

Mrs. Cook's more-frequent adaptations—*changes means by which objective are met* and *invents examples, analogies, or metaphors*—accounted for three-quarters of all of her reported adaptations. An example of when she adapted to change the means by which an objective was met was when reviewing questions at the end of a reading selection about the lost city of Atlantis.

Table 12

Mrs. Cook's On-the-fly Adaptations (Lower Achieving Class)

	Lesson											
Code	**L1**	**L2**	**L3**	**L4**	**L5**	**L6**	**L7**	**L8**	**L9**	**L10**	**Total**	**%**
Modifies Lesson Objective		3		1		1					5	11%
Changes means by which objective is met	2	1	4	1	1		3	3	2	3	20	45%
Invents examples, analogies, or metaphor	1	3	1	1	1		1	3		2	13	30%
Inserts a mini-lesson											0	0%
Suggests a different perspective to lesson					1		1				2	5%
Omits or inserts activity		1	1		1						3	7%
Changes planned order of instruction			1								1	2%
Total	3	8	7	3	4	1	5	6	2	5	44	

As they discussed the questions, she wanted to see if they could draw additional inferences from the text. This is how she described this adaptation:

> The questions at the end of this story were pretty basic. I wanted to see if they could gather more information that wasn't stated in the text, so I asked the question, 'Did they give information that might lead readers to think that Atlantis was real?' I hadn't planned on asking that question, but I'm trying to find opportunities to use different strategies to get more out of reading. (Lesson 1b1)

Another example of this kind of adaptation was when she taught the lesson on appositives. After providing the students a few examples, a student noticed a pattern that helped her with identifying appositives. Mrs. Cook continued with that student's idea and decided to have the class come up with a rule for identifying and creating appositives. They concluded, "When you see two of the same verbs in a sentence, look out. You have to have one verb, so you have to get rid of the other one."

The other more-frequent adaptation was *inventing examples, analogies, or metaphors*. Mrs. Cook invented an example when they were reading about food shortages in the book, *Among the Hidden*. The students did not seem to understand the concept of food shortage, so she decided to stop and have a discussion. She led a discussion by posing these questions and comments: "What crops are fast food places cutting back on?" The students did not respond. "Well, think about fast food." A student commented about how restaurants

were not putting tomatoes on cheeseburgers. "Okay, what happened to the tomatoes?" No Response. Mrs. Cook then said:

> They froze. We don't have tomatoes because there aren't many, and the one's left are expensive. Although it's not as serious as the examples in the book, this could happen here, too. So famines, drought, food problems have happened here and they've happened in the book. (Lesson 1b8)

One of the less-frequent adaptations was *modifies lesson objective*. An example of this was when Mrs. Cook was beginning to teach from *Among the Hidden*, but moved the conversation towards preparing and motivating them for the EOG. To the students she said:

> I want to focus on our book *Among the Hidden*. Wait . . . do you realize that . . . Do you realize you have EOG coming in six weeks? You might think that it's going to be tough, but you can do it. I know there's stuff in here that you don't get; I know there are vocabulary words you don't get; I know there's comprehension stuff that you do not even understand. It sounds like it's a foreign language sometimes. That is just how that EOG is going to be. We can do this together. So I want to say do not be intimidated, but to say it as 'look we can tackle this.' We just need to remember to take our time and remember what we've learned throughout the year. (Lesson 1b6)

Rationales for on-the-fly adaptations. Mrs. Cook provided a rationale for each of her on-the-fly adaptations. When looking at Table 13, the frequencies in

which she provided certain rationales can be grouped into three categories. The first category represented her more-frequent rationales, *helping students make connections*, (*n*=11, 25%) and *using the knowledge of student(s) or classroom dynamics to alter instruction*, (*n*=11, 25%).

Table 13

Mrs. Cook's Rationales for On-the-fly Adaptations (Lower Achieving Class)

	Lesson											
Code	**L1**	**L2**	**L3**	**L4**	**L5**	**L6**	**L7**	**L8**	**L9**	**L10**	**Total**	**%**
Objective not met			2	1							3	7%
Challenge/ Elaborate								1			1	2%
To teach a specific strategy or skill		2				1			1	1	5	11%
To help students make connections	1	2		1			3	3		1	11	25%
Uses knowledge of student(s) or classroom dynamics to alter instruction	1	1	2	1	1		1	1	1	2	11	25%
Checking Student Understanding	1	1	1					1			4	10%
Anticipation of upcoming difficulty			1								1	2%
To manage behavior		1									1	2%
To manage time		1									1	2%
To promote student engagement			1		2	1		1		1	6	14%
Total	3	8	7	3	3	2	4	7	2	5	44	

The second category represented rationales (a) *to promote student engagement*, (n=6, 14%); (b) *to teach a specific strategy or skill*, (n=5, 11%); (c) *checking student understanding*, (n=4, 10%); and (d) *objective not met*, (n=3, 7%). The third category represented the remaining rationales less frequently used: (a) *challenge/elaborate*, (n=1, 2%); (b) *anticipation of upcoming difficulty*, (n=1, 2%); (c) *to manage behavior*, (n=1, 2%); and (d) *to manage time*, (n=1, 2%). Within her total rationales, she reported that her adaptations promoted reading comprehension (n=19, 44%), but did not adapt to promote her vision.

Mrs. Cook's more-frequent rationales—*to help students make connections* and *uses knowledge of student(s) or classroom dynamics to alter instruction*—accounted for one-half of her total rationales. An example when she reported helping students make connections was when the class discussed the tomato food-shortage in comparison to the food shortages in the book. She provided this rationale for having the conversation about food shortages:

> I was trying to compare the two, bring them together. I was trying to think of overall things of the book and one of them deals with food and famine because supposedly the world undergoes these huge droughts and huge famines. So that's something that they never think about. Most of these kids get cheeseburgers, so I just wanted to see if it was something anybody could even begin to understand. That's why I started talking about the tomatoes (and strawberries) and the freezing in our community. (Lesson 1b8)

Another more-frequent rationale was using the *knowledge of students or classroom dynamics to alter instruction*. An example when she reported this rationale was when she was providing examples of appositives. With her higher achieving class, she only provided examples orally. For this class, however, when Mrs. Cook provided examples orally she also wrote them on the overhead for her students to see. She provided this rationale for modifying her instruction:

> We did it aloud in the last class. We didn't write them up there . . . they didn't need it. This time it was because they had to be able to see it. They can't just hear it. I have too many visual learners in this second class. I had to write every answer out. Today, I recognized that some people were going to be out to lunch, so I wanted to provide support. (Lesson 1b9)

The second category of rationales—*to promote student engagement*, *to teach a specific strategy or skill*, *checking student understanding*, and *objective not met*—accounted for approximately 40% of Mrs. Cook's rationales. An example when Mrs. Cook adapted to promote student engagement was when she taught a lesson on personification. She had each student write one example of personification. Some students were doing very well, while other still needed help. Instead of providing more examples, she allowed other students to share

theirs in an effort to get the others on board. She provided this rationale for letting others share:

> I had planned on going around checking them and speaking back to them one-on-one. But I had not planned on them stopping and saying wait a minute, Hannah, 'read yours aloud. 'Skyler and Alex read yours.' I was seeing so many sentences that I wanted . . . Hannah's was good. Alex wrote the 'snow ate my car or something.' Skyler had 'the blender juggled the fruit.' So they had such good ones that I thought let me give some more direction or let me let them hear more examples that aren't mine. I wanted to let them know that 'these kids are coming up with them; you can do this.' So I was trying to just encourage them more. (Lesson 1b5)

An example when she adapted *to teach a strategy or skill* was when the class invented a rule for identifying and creating appositives (as explained in the section above). She provided this rationale for letting the class create the rule:

> I think because they understood that you can't have two verbs used in that way in a sentence with my higher achieving group. This group would have used two verbs over and over and not recognized it. I felt like the more of a rule I could give them, if they can learn the rule, they can follow it. So just to try and make it more concrete I guess. (Lesson 1b9)

An example when she adapted *to check students' understanding* was when she taught a lesson on idioms. Instead of providing a definition as an introduction, she decided to modify her lesson by first giving them examples to see if they knew the meanings of certain popular phrases. For example she said,

"I'll catch you later . . . what does that mean? Does it mean I'll really catch you later?" She provided this rationale for checking their understanding about such phrases before providing a definition of an idiom:

> I wanted to transition into examples of idioms before I ever even said the word idiom. I wanted first to see if they recognized that these phrases do not literally mean what the phrase actually says. These are sayings that get somebody's attention but what's the point in them or why does Mrs. Cook have them written up on the board? So, they were getting what I was saying but then I had to kind of direct it into what's the point of this, so I provided a definition. Yes, these are a lot of funny things, but I also wanted to make sure they understood. (Lesson 1b3)

The last rationale in the second category was *objective not met*. An example when she provided this rationale was during the same lesson mentioned above on idioms. Later in the lesson, most of the class began confusing similes with idioms. Mrs. Cook decided to stop at that point and give each student an idiom dictionary to browse for the remainder of the lesson; then they would try the lesson again the next day. She provided this rationale for stopping the lesson:

> They understood the definition but some of them were still giving similes. Because I felt like they shouldn't be practicing the wrong skills, so just let me stop here, review what the definition is and then have them look forward to something tomorrow. Because maybe when they can go through those idiom dictionaries it can be . . . some more light bulbs can go on rather than practice it incorrectly. (Lesson 1b3)

The third category represented Mrs. Cook's less-frequent rationales. These included: (a) *to challenge/elaborate*, (b) *anticipation of upcoming difficulty*, (c) *to manage behavior*, and (d) *to manage time*. Each of these rationales was only reported on one occasion.

Student outcomes. In this section I summarized students' change in understanding first at the class level, then at the student level. At the student level, I also categorized the type of change and provided excerpts from their post-study interviews. Based on the doubling criterion (see Table 14), a change occurred in three out of nine comparisons. Sterling showed a change *before* and *after* the reading activity, Triston showed a change *before* the reading activity, and Serena showed no change.

Table 14

Response Frequency by Student (Mrs. Cook's Lower Achieving Class)

	Before		During		After		Total	
	Pre	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**
Sterling (High Achiever)	1	2	4	6	1	4	6	12
Triston (Average Achiever)	1	3	3	5	3	3	7	11
Serena (Low Achiever)	2	2	4	5	4	4	10	11

Sterling showed new strategies *before* the reading activity by "reading the captions" and *after* the reading activity by going over the "review checks" at the end of the chapter. Triston's change *before* the reading activity consisted of "taking a picture walk" and "predicting what the book was going to be about."

Summary. In sum, for her lower class Mrs. Cook adapted 13 times across 10 lessons during planning, mostly modifying *previous lessons*. She most often reported that her planning adaptations were due to *using the knowledge of student(s) or classroom dynamics to alter instruction, anticipating an upcoming difficulty, or managing time*. She made 44 on-the-fly adaptations, the majority of them by *changing the means by which objectives were met* and *inventing examples, analogies, and metaphors*. She most often reported that her on-the-fly adaptations were due to *helping students make connections, using the knowledge of student(s) or classroom dynamics to alter instruction, or promoting student engagement.* Within her total adaptations—both when planning and on-the-fly—37% were designed to promote reading comprehension and 0% were designed to promote her vision. Based on the doubling rule for students' change in understanding of reading comprehension, students showed a change in 3 of 9 possible cells when participating in the pre and post-study reading activity. Their change in

understanding occurred in random frequencies, making it difficult to attribute their growth to specific adaptations.

Mrs. Cook's Class Comparison

Planning adaptations. In summary, Mrs. Cook made 28 planning adaptations across her 20 lessons for an average of 1.4 with a maximum of 3 and a minimum of 0. The majority of her adaptations (n=11, 39%) were made based on *previous lessons* (see Table 15). Her other planning adaptations spread across the remaining 3 options (18%, 21.5% & 21.5% for changes based respectively on *district or school requirements*, *materials*, and *instructional strategies*).

Table 15

Mrs. Cook's Planning Adaptations (Class Comparison)

Code	Higher Achieving Class	Lower Achieving Class	Total	%
District/ School Requirement	**4**	**1**	5	18%
Materials	3	3	6	21.5%
Previous Lesson	3	8	11	39%
Instructional Strategy	**5**	**1**	6	21.5%
Total	15	13	28	

As noted in Table 15, two of her adaptations—*district/school requirements* and *instructional strategy*—favored the high achievers and one adaptation—

previous lesson—favored the lower achievers. Mrs. Cook explained how she altered the school and district requirements to make them more interesting for her higher achievers and she changed her "instructional strategies" to make them more challenging for this group. She said:

> I know they can handle it and these aren't worksheet type kids. These aren't the type who needs to have that in front of them. My afternoon group, I have contemplated handing the worksheet out for them. We'll see how that goes. (Lesson 1a5)

On another occasion, Mrs. Cook stated:

> In my morning class (higher achieving class) I'm taking the same concepts but I'm not stopping the whole group novel that we're reading. I'm just applying those concepts to the novel so that's a change; that's a modification because I'm not using the materials that they suggest in my morning class but I am using them in my afternoon class. (Lesson 1a7)

On the other hand, the table also shows that Mrs. Cook adapted her instruction based on *previous lessons* more frequently for her lower achieving class than for her higher achieving class; this was largely due to modifying self-discovery activities to basic direct-instruction. In Mrs. Cook's words, "In the past I've done more of the self-discovery lessons. With this group it will be mostly direct instruction because of the level of students this year" (Lesson 1b2).

Rationales for planning adaptations. Mrs. Cook provided 28 rationales between her higher achieving and lower achieving classes. Her more-frequent categories consisted of three rationales: (a) *uses knowledge of student(s) or classroom dynamics to alter instruction*, (n=10, 36%); (b) *to teach a strategy or skill* (n=6, 21%); and, (c) *to promote student engagement*, (n=5, 18%)—these rationales accounted for 75% of her total (see Table 16). The remaining was placed in the less-frequent category. Within her total rationales, she reported that her adaptations promoted reading comprehension (n=12, 43%) and her vision (n=1, 4%).

Table 16

Mrs. Cook's Rationales for Planning Adaptations (Class Comparison)

Code	Higher Achieving Class	Lower Achieving Class	Total	%
Objective not met	0	0	0	0%
Challenge/ Elaborate	0	0	0	0%
To teach a specific strategy or skill	5	1	6	21%
To help students make connections	0	0	0	0%
Uses knowledge of student(s) or classroom dynamics to alter instruction	7	3	10	36%
Checking Student Understanding	0	1	1	4%
Anticipation of upcoming difficulty	1	2	3	10%
To manage behavior	0	1	1	4%
To manage time	0	2	2	7%
To promote student engagement	2	3	5	18%
Total	15	13	28	

When looking at differences between classrooms she provided similar amounts of rationales (15 for higher achieving and 13 for lower achieving). For her higher achieving classroom, however, her rationales were based more on student cognition. For example, she adapted *to teach a specific strategy or skill* on a 5:1 ratio. This was also evident when noting whether her rationales promoted the understanding of reading comprehension, where 67% of her adaptations promoted reading comprehension for her higher achieving class and 15% for her lower achieving class. She also adapted based on the *knowledge of students or classroom dynamics* for her higher achieving class on a ratio of 7:3. Although three adaptations favored the lower class, none of them were frequent enough to make any generalizations. There was also a lack of evidence regarding the influence of her vision between the two classrooms.

On-the-fly adaptations. This ratio captured in 4 of the 7 categories, all favoring higher achievers, is consistent with earlier comments regarding her attempts to make curriculum more challenging for high achievers.

In summary, Mrs. Cook made 122 on-the-fly adaptations across 20 lessons in two classrooms for an average of 6.1 per lesson with a maximum of 16 and a minimum of 1. When looking at these adaptations (see Table 17), the majority fell within two types: *changes the means by which objectives are met*, (n=56, 46%) and

invents examples, analogies or metaphors, (n=31, 25%). Furthermore, when looking at differences between classrooms, Mrs. Cook provided more adaptations in this category for her higher versus lower achievers; she showed these adaptations in at least 8 of her 10 observed lessons.

Table 17

Mrs. Cook's On-the-fly adaptations (Class Comparison)

Code	Higher Achieving Class	Lower Achieving Class	Total	%
Modifies Lesson Objective	4	5	9	7%
Changes means by which objective is met	**36**	**20**	**56**	**46%**
Invents examples, analogies, or metaphor	**18**	**13**	**31**	**25%**
Inserts a mini-lesson	2	0	2	2%
Suggests a different perspective to lesson	**7**	**2**	**9**	**7%**
Omits or inserts activity	**8**	**3**	**11**	**9%**
Changes planned order of instruction	3	1	4	4%
Total	78	44	122	

Her second category of adaptations fell within three types: *modifies lesson objectives*, (n=9, 7%), *omitted or inserted activity*, (n=11, 9%) and *suggests a different perspective*, (n=9, 7%). Within this category, she used more of the omitted or inserted activity, and suggests a different perspective with her higher achievers.

Thus, 71% Mrs. Cook's adaptations fell within the first category and the 23% fell in the second with the remaining adaptation spread across the two remaining types.

Rationales for on-the-fly adaptations. Mrs. Cook provided 122 rationales between her higher achieving and lower achieving classes (n=78 for higher achieving, n=44 for lower achieving). She provided more rationales for her higher achieving class because she adapted more for them. Her rationales (see Table 18) were organized in two categories—more-frequent and less-frequent. The more-frequent category consisted of three rationales: (a) *to help students make connections*, (n=35, 29%; (b) *uses knowledge of student(s) or classroom dynamics to alter instruction*, (n=29, 24%); and, (c) *to teach a specific strategy or skill*, (n=19, 15%)—these rationales accounted for 79% of her total. The remaining was placed in the less-frequent category. Within her total rationales, she reported that her adaptations promoted reading comprehension (n=52, 43%) and her vision (n=3, 3%).

In addition to adapting more for her higher achieving students (44% more often), most of her reported rationales also favored them. For her higher achieving classroom, the most notable discrepancies were: (a) *to challenge/elaborate*, (83% more often); (b) *anticipation of an upcoming difficulty*, (83%

more often); (c) *to teach a specific strategy or skill*, (64% more often); and, (d) *to help students make connections*, (56% more often).

Table 18

Mrs. Cook's Rationales for On-the-fly Adaptations (Class Comparison)

Code	Higher Achieving Class	Lower Achieving Class	Total	%
Objective not met	1	3	4	4%
Challenge/ Elaborate	6	1	7	5%
To teach a specific strategy or skill	14	5	19	15%
To help students make connections	24	11	35	29%
Uses knowledge of student(s) or classroom dynamics to alter instruction	18	11	29	24%
Checking Student Understanding	0	4	4	4%
Anticipation of upcoming difficulty	6	1	7	5%
To manage behavior	3	1	4	4%
To manage time	4	1	5	4%
To promote student engagement	2	6	8	6%
Total	78	44	122	

In some cases, however, she provided more rationales for her lower achieving classroom. For example, the most notable discrepancies were: (a) *objective not*

met, (67% more often); (b) *checking student understanding*, (100% more often); and, (c) *to promote student engagement*, (67% more often). Within her total rationales, her reports showed similar percentages between the two classes regarding adaptations promoting reading comprehension (42% and 43%). Additionally, because she only reported that three adaptations promoted her vision, it was difficult to evaluate the impact her vision had between the classrooms.

Student outcomes. When comparing the student outcomes between classes, there was little evidence that her teaching practices and adaptations impacted one class more than the other. The data showed that both classes responded more often in their post-study interviews. Based on the doubling rule, Mrs. Cook's higher achieving class showed a change in understanding *after* the reading activity (see Table 19).

Table 19

Response Frequency by Class (Mrs. Cook's Class Comparison)

	Before		**During**		**After**		**Total**	
	Pre	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**
Higher Achieving Class	8	10	7	10	**4**	**9**	19	29
Lower Achieving Class	4	7	11	16	8	11	23	34

Relationship between adaptations and student outcomes. When looking at the frequency of Mrs. Cook's adaptations promoting reading comprehension and the frequency of strategies her students provided, it was difficult to establish a definitive relationship between the two. For example, during her lessons for her higher achieving class, she adapted 43 times (46%)—through planning and on-the-fly—to promote the understanding of reading comprehension. Likewise, during her lessons for her lower achieving class, she adapted 15 times (26%). Based on the student frequency chart above (see Table 19), the reading comprehension strategy usage between the classrooms was somewhat similar. Contrary to the assumption that more adaptations would equate to more change in the understanding of strategy use, data from Mrs. Cook's classes did not support this claim.

Mrs. Powell

Mrs. Powell taught two AG classes—third-grade and fifth-grade—for both reading and math. This study focused on her whole-group reading instruction for both grade levels. During most of the classroom observations, she implemented shared reading activities and group discussions. The case studies from both classrooms are featured below.

Vision for Teaching (Portrait)

> I want them to become good citizens; to be able to make it in a global economy, in a global world. I think the United States is changing and everything is changing, so they need to be thinkers and problem solvers. I can get at this through reading. I want them to become fluent readers so they can be reflective and able to use all the strategies. I also want them to enjoy learning and I'd like to see all my students go on to college.

Case #3: Mrs. Powell's Third-Grade Class

Planning adaptations. Mrs. Powell adapted 3 times over a period of 10 lessons, averaging 0.3 planning adaptations per lesson with a maximum of 1 and a minimum of 0. As noted in Table 20, she adapted for this class in two ways: *district/school requirement*, (n=1; 33%), and *materials*, (n=2; 67%). She did not adapt based on a *previous lesson* or *instructional strategy*.

Table 20

Mrs. Powell's Planning Adaptations (3rd Grade Class)

	Lesson											
Code	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	**Total**	**%**
District/ School Requirement					1						1	33%
Materials								1		1	2	67%
Previous Lesson											0	0%
Instructional Strategy											0	0%
Total	0	0	0	0	1	0	0	1	0	1	3	

Mrs. Powell's most common adaptation was a change in what the *materials* suggested to use. An example was when she adapted a dinosaur research project by using computers rather than using encyclopedias. This was her description of the adaptation:

> We're doing a scavenger hunt. They will go onto the internet and research dinosaurs. I've got different questions and they'll find the answers. The materials actually called for encyclopedias but I decided because we have done research projects earlier in the year using a book and encyclopedias, I wanted to introduce them to using search engines and the internet. I decided just to do all technology. (Lesson 2a10)

Her other adaptation based on what the *materials* suggested to use was when she was reviewing for the EOG. She was given practice workbooks to use in the days leading up to the test. The instructions are for each student to practice and be assessed independently. Mrs. Powell wanted to model how she would complete this assessment, and then have a class discussion on the mental processes needed to perform well. She said:

> The materials suggest that you let the kids take it by themselves and you just give them the answers and go over it. I change it in that the first whole practice test which is very long and we're not going to do the whole thing today but I walk them through each question and model and we do think aloud and process of elimination; all that and then later on next week, we'll be doing it the way they suggest. (Lesson 2a8)

The other adaptation was when Mrs. Powell made a change in plans despite a *school/district requirement*. She noted that the district likes for teachers to teach one specific strategy per lesson. For this particular lesson, however, she wanted to integrate multiple reading comprehension strategies (e.g., cause and effect, inferencing, and sequencing) during a shared-reading activity using *The Enormous Egg* by Oliver Butterworth. She said:

> I'm going to do cause and effect using "The Enormous Egg." I'm also going to do some sequencing and inferencing because this chapter lends itself to using those strategies. The district says that we should focus on one strategy for a while. If we're teaching sequencing or cause and effect or inferencing, we should do it for weeks; one skill for a long time and then move on to the next. I'm going to do mine totally different. I do mine . . . I do all the skills at once. (Lesson 2a5)

Rationales for planning adaptations. Mrs. Powell provided a rationale for each of her planning adaptations (see Table 21). Two of her rationales were *to teach a strategy or skill*, (n=2, 67%), and her other rationale was *to challenge* her students (n=1, 33%). She did not report a rationale based on the other descriptors. Within her total rationales, she reported that her adaptations promoted reading comprehension (n=2, 67%), but did not adapt to promote her vision.

Table 21

Mrs. Powell's Rationales for Planning Adaptations (3rd Grade Class)

Code	Lesson										Total	%
	L1	**L2**	**L3**	**L4**	**L5**	**L6**	**L7**	**L8**	**L9**	**L10**		
Objective not met											0	0%
Challenge/ Elaborate					1						1	33%
To teach a specific strategy or skill								1		1	2	67%
To help students make connections											0	0%
Uses knowledge of student(s) or classroom dynamics to alter instruction											0	0%
Checking Student Understanding											0	0%
Anticipation of upcoming difficulty											0	0%
To manage behavior											0	0%
To manage time											0	0%
To promote student engagement											0	0%
Total	0	0	0	0	1	0	0	1	0	1	3	

Mrs. Powell's most common rationale was *to teach a strategy or skill*. One example was when she planned to use technology for the dinosaur project. She wanted to teach them to use their reading skills—along with computer skills—to find and evaluate information on the internet. She provided this rationale for teaching these skills:

> I want them to be able to be smart when it comes to surfing the net and researching on the internet; being able to find things from research and deciding whether it's good information. They will need to use these skills in the future, especially in middle school and high school. So they need to be prepared. (Lesson 2a10)

Another example when she wanted to teach a strategy or skill was when planning the lesson on test-taking strategies. Instead of following the practice-book instructions, she wanted to model her thinking processes and have a class discussion. She provided this rationale:

> I just think just making them sit there doing it, even though we go over it, is sometimes less effective. I want to model and show them. I think it's clearer to the kids. Sometimes they get a better idea on how to work through a text when they can see others doing it. (Lesson 2a8)

Mrs. Powell's other rationale was *to challenge* her students. Rather than teaching one specific strategy for an entire lesson, she wanted to integrate

multiple reading comprehension strategies using the chapter book *The Enormous Egg*. She provided this rationale:

> It makes it more challenging and it's more realistic. I want them to see that they can use multiple techniques to help them understand their reading. A lot of times when we read when we get older, it's for many purposes. I think it's better to get them to understand that they'll need to pick and choose what they've learned in reading class to be better readers. (Lesson 2a5)

On-the-fly adaptations. Mrs. Powell made 58 on-the-fly adaptations across 10 lessons in her higher achieving classroom for an average of 5.8 per lesson with a maximum of 10 and a minimum of 2. When looking at her more-frequent adaptations, Table 22 shows that two types accounted for 73% of her on-the-fly modifications: *changes the means by which objectives are met*, (*n*=34, 59%) and *invents examples, analogies or metaphors*, (*n*=14, 24%). Her less-frequent on-the-fly adaptations included: (a) *omits or inserts activity*, (*n*=6, 10%); (b) *inserts a mini lesson*, (*n*=2, 3%); (c) *suggests a different perspective to the lesson*, (*n*=1, 2%); and (d) *changes planned order of instruction*, (*n*=1, 2%). She did not "modify lesson objective" with this classroom.

Table 22

Mrs. Powell's On-the-fly Adaptations (3rd Grade Class)

Code	Lesson										Total	%
	L1	**L2**	**L3**	**L4**	**L5**	**L6**	**L7**	**L8**	**L9**	**L10**		
Modifies Lesson Objective											0	0%
Changes means by which objective is met	6	4	4	1	2	4	6	3	1	3	34	59%
Invents examples, analogies, or metaphor	1	3	1		4	2	1	1	1		14	24%
Inserts a mini-lesson							1		1		2	3%
Suggests a different perspective to lesson	1										1	2%
Omits or inserts activity				1	2		2		1		6	10%
Changes planned order of instruction			1								1	2%
Total	8	7	6	2	8	6	10	4	4	3	58	

Her most common on-the-fly adaptation—*changes means by which objective was met*—accounted for almost 60 % of all modification and was observed at least once in every lesson. An example of this adaptation was when she was doing a shared-reading activity using Roald Dahl's *Charlie and the Chocolate Factory* to

practice comprehension strategies. She stopped at one point in the reading and asked a question about the Everlasting Gobstopper. She asked the class:

> I want to ask you something because I just thought of this while I'm reading. Why could having an Everlasting Gobstopper not be a good idea for Willy Wonka? Spend some time with your small group and come up with a reason for and against Wonka's Gobstober and then we'll come back and see what you've come up with. (Lesson 2a2)

The students then had a discussion whether Wonka's invention made good business sense. She then connected it back to the reading by showing them how students could do 'extra thinking' beyond what the text said.

Another example when she *changed the means by which objective was met* occurred later in the lesson mentioned above. During the book when the characters were all in the inventing room, Wonka showcased his new chewing gum invention. One character, Mike Teavee, asked, "That's all?" Mrs. Powell stopped at this point and asked her students, "Why does Mike Teavee say this after the gum appears?" The class then discussed the possible reasons, by trying to go beyond literal meanings in the text.

Mrs. Powell's second most-frequent adaptation—approximately one-fourth of the total observed modifications—was *invents examples, analogies, or metaphors*. An example of this adaptation was when she reviewed the End of

Quarter (EOQ) practice-book. During a discussion about a story's theme/moral that had to do with being pleased with oneself, she provided an example of a time earlier in her life when she dyed her hair for graduation because she was not pleased with the way she looked. She conveyed to the class that dying her hair turned out to be a bad idea and that she should have been happy with the way she looked. She then allowed students to discuss a time when they were not pleased with themselves.

Some of Mrs. Powell's less-frequent adaptations included *omits or inserts activity* and *inserts a mini lesson*. She "inserted an activity" during a shared-reading lesson with *The Enormous Egg*. They came upon the word "telephone operator" and some of the students were confused as to its meaning. First, Mrs. Powell stopped to explain. Then, she paused and asked them to look at the copyright date in the front of the book. She said:

> When you see the year of the copyright, a lot of times that will help you understand certain words. So far, we've read 'telephone operator,' 'apron,' and 'wives staying in the kitchen.' This was common back then. Let's look at some other books. Look at the books you have. You'll see that a lot of them were written in different years. So, what do you do when you don't understand a word? One way is to go back and look at the copyright. (Lesson 2a5)

Students then looked at different copyright dates from the books nearby and they discussed how they could use these dates to help understand the context of the books they read.

An example of when she adapted her instruction by *inserting a mini-lesson* was when she was reviewing for the EOG. The EOG practice-book provided a limerick for the students to read and answer questions. During this lesson, Mrs. Powell decided to model how she reads poems, especially how she reads limericks. She chose to teach a lesson about reading and writing limericks. She began by providing a definition of a limerick, "a musing or funny poem—follows a certain pattern—rhymes." She then invented a funny limerick about spaghetti. The students stood by their desks, read the limerick, and clapped to the rhythm several times. After this mini-lesson, they continued with their EOG review.

The remaining two adaptations—*suggests a different perspective to the lesson* and *changes planned order of instruction* –were only observed one time each and accounted for 4% of the total number. The remaining adaptation descriptor, *modifies lesson objective*, was not observed in this classroom.

Rationales for on-the-fly adaptations. Mrs. Powell provided a rationale for each of her on-the-fly adaptations. As can be seen in Table 23, the frequencies

in which she provided certain rationales can be grouped into two categories, more-frequent and less-frequent.

Table 23

Mrs. Powell's Rationales for On-the-fly Adaptations (3rd Grade Class)

Code	Lesson										Total	%
	L1	**L2**	**L3**	**L4**	**L5**	**L6**	**L7**	**L8**	**L9**	**L10**		
Objective not met											0	0%
Challenge/ Elaborate											0	0%
To teach a specific strategy or skill	2	3		1	2		6	3		1	18	31%
To help students make connections	2	3	1		3	3	3	1	1	1	18	31%
Uses knowledge of student(s) or classroom dynamics to alter instruction	1	1	3		1	2			1		9	15.5 %
Checking Student Understanding	1						1		1		3	5%
Anticipation of upcoming difficulty	1				1						2	3.5 %
To manage behavior				1	1						2	3.5 %
To manage time			1			1			1	1	4	7%
To promote student engagement	1		1								2	3.5 %
Total	8	7	6	2	8	6	10	4	4	3	58	

The first category represented her more-frequent rationales: *to teach a strategy or skill*, (*n*=18, 31%), *to help students make connections*, (*n*=18, 31%), and *uses the knowledge of student(s) or classroom dynamics to alter instruction*, (*n*=9, 15.5 %). The second category represented less-frequent rationales: (a) *to manage time*," (*n*=4, 7%); (b) *checking for student understanding*, (*n*=3, 5%); (c) *anticipation of upcoming difficulty*, (*n*=2, 3.5%); (d) *to manage behavior*, (*n*=2, 3.5%); and, (e) *to promote student engagement*, (*n*=2, 3.5%). She did not report the rationale *objective not met* or *to challenge/elaborate*. Within her total rationales, she reported that her adaptations promoted reading comprehension (n=36, 64%), but did not adapt to promote her vision.

Over three-fourths of Mrs. Powell's rationales came from three descriptors: *to teach a strategy or skill*, *to help students make connections*, and *uses the knowledge of student(s) or classroom dynamics to alter instruction*. An example when she adapted to teach a strategy or skill was when she had the Willy Wonka and his Everlasting Gobstopper conversation (described in the above section). She asked the students, "Why could having an Everlasting Gobstopper not be a good idea for Willy Wonka?" She provided this rationale for posing this discussion question:

> I had them talk about this so they could get ideas that are actually written in the text. Just so they could logically come up with it wouldn't be real smart for him to do this. He's going to lose a lot of money! I don't just want them to get what the text is saying literally, I want them to go beyond what it says and think for themselves. (Lesson 2a2)

An example when she adapted *to help students make connections* was when she had the discussion (described in the section above) about the time when she dyed her hair for graduation and then allowed students to discuss about a time when they were not pleased with themselves. To help students make connections with the text, she said:

> Sometimes personal stories can help them with understanding characters in the story. I used myself so they'd feel more comfortable sharing. The graduation story just popped in my head. I wasn't pleased with myself just like Heidi wasn't and I think it's making a connection with their real life. They can first make better connections with me than they can with the character in the story. (Lesson 2a6)

An example when she adapted by *using the knowledge of student(s) or classroom dynamics to alter instruction* was when she stopped the shared-reading activity at the part about Willy Wonka's gum machine (described in the section above). She asked the students, "Why does Mike Teavee say this after the gum appears?" She provided this rationale for adapting the lesson:

> I think a lot of times I've noticed especially in their literature circle groups the students' discussions are low-level. I could tell with this part of the story, that they did not catch that little comment about Mike Teavee. I've been noticing this about my students. I want questions that are of a higher level and they tend to come up with what color was Mike Teavee's shirt; like it matters. And it doesn't matter. I want them to really see 'why did Mike Teavee say that?' It said it because of all the noise and this big huge machine doing all this and all that pops out is a little piece of candy. I wanted them to understand that section, but more to kind of remind them of concerns that I've had in their literature circle groups. (Lesson 2a2)

A portion of Mrs. Powell's less-frequent rationales were *to manage time* and *checking for student understanding*. An example when she adapted to manage time was during their dinosaur research project in the computer lab. The students were searching for dinosaur facts on the internet, but needed help narrowing their search. Mrs. Powell modeled on an extra computer how to be more specific when using key words on search engines. She provided this rationale for helping them to manage time:

> They were taking too long. What they were doing was going into just a dinosaur, basic dinosaur websites and some of the questions asked for specific dinosaurs. It was taking them forever and I was getting frustrated. I decided to give them additional help to speed up the process. (Lesson 2a10)

An example when she adapted *to check for student understanding* was during a shared-reading activity using *The Enormous Egg*. They came upon a part about women being "prejudiced" towards reptiles. Mrs. Powell stopped the reading activity and had a discussion concerning two areas: the meaning of "prejudiced" and whether the statement about women and reptiles was a fact or an opinion. She wanted to check their understanding about this top and provided this rationale:

> I wanted to make sure they understood what he was saying when he said women usually had a prejudice against reptiles. I figured I could also do facts and opinion. This was an opinion, but I wasn't sure if the students were taking this as a fact. (Lesson 2a7)

The remaining five rationale descriptors only accounted for approximately 10% of her total rationales.

Student outcomes. In this section I summarized students' change in understanding first at the class level, then at the student level. At the student level, I also categorized the type of change and provided excerpts from their post-study interviews. At the student level, I also categorized the type of change and provided excerpts from their post-study interviews. Based on the doubling criterion (see Table 24), a change occurred in five out of nine comparisons. Sarah

showed a change "after" the reading activity, Scotty showed a change "before" and "during" the reading activity, and Riley showed a change "before" and "after" the reading activity.

Table 24

Response Frequency by Student (Mrs. Powell's 3rd Grade Class)

	Before		During		After		Total	
	Pre	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**
Sarah (High Achieving)	1	1	5	4	1	2	7	7
Scotty (Average Achieving)	1	3	2	5	2	3	5	11
Riley (Low Achieving)	2	5	4	6	2	4	8	15

Sarah stated *after* the reading activity that "I would look back and just read it again, because sometimes people read it and forget . . . I would look back to see if I had missed anything or didn't read something." Scotty showed a change *before* the reading activity by reading the title, subheadings, and vocabulary, and *during* the activity by comprehending whether volcanoes were "good" or "bad" and looking at pictures and "side bars that might help." Riley revealed additional strategies *before* the reading activity by "scanning through the study guide, and previewing pictures and vocabulary." *After* the reading

activity she offered new strategies by "looking at the definitions, rereading, and answering the test questions."

Summary. In sum, for her third-grade class Mrs. Powell adapted three times across 10 lessons during planning, mostly modifying what her *materials suggested* to do. She most often reported that her planning adaptations were due to teaching a *specific strategy or skill*, or by *challenging or elaborating*. She made 58 on-the-fly adaptations, the majority of them by *changing the means by which objectives were met* and *inventing examples, analogies, and metaphors*. She most often reported that her on-the-fly adaptations were due to *helping students make connections, teaching a specific strategy or skill, or using the knowledge of student(s) or classroom dynamics to alter instruction.* Within her total adaptations—both when planning and on-the-fly—62% were designed to promote reading comprehension and 0% were designed to promote her vision. Based on the doubling rule for students' change in understanding of reading comprehension, students showed a change in 5 of 9 possible cells when participating in the pre and post-study reading activity. Their change in understanding occurred in random frequencies, making it difficult to attribute their growth to specific adaptations.

Case #4: Mrs. Powell's Fifth-Grade Class

Planning adaptations. Mrs. Powell adapted 6 times over a period of 10 lessons, averaging 0.6 planning adaptations per lesson with a maximum of 2 and a minimum of 0. As noted in Table 25, she adapted for this class in four ways: (a) *previous lesson*, (n=2, 33%); (b) *instructional strategy*, (n=2, 33%); (c) *district/school requirement*, (n=1; 17%), and *materials*, (n=1, 17%).

Table 25

Mrs. Powell's Planning Adaptations (5th Grade Class)

	Lesson											
Code	**L1**	**L2**	**L3**	**L4**	**L5**	**L6**	**L7**	**L8**	**L9**	**L10**	**Total**	**%**
District/ School Requirement								1			1	17%
Materials					1						1	17%
Previous Lesson			1				1				2	33%
Instructional Strategy								1		1	2	33%
Total	0	0	1	0	1	0	1	2	0	1	6	

Mrs. Powell's more-frequent adaptations was when she made modifications to *previous lessons* and *instructional strategies*. An example of when she modified a previous lesson was when her students participated in an inferencing activity. In this lesson students worked in groups as they rotated

through four stations of inferencing activities. In previous lessons, students rotated through these stations and worked independently. Mrs. Powell described this adaptation:

> I will talk about what inferencing means and then they're going to go around in groups, four stations with different inferencing activities. Then after they get around all the stations, if they all get around, we will discuss what they found at each station. But this is different from how I usually teach it. They'll be working and discussion in groups this time. (Lesson 2b3)

An example when she modified an *instructional strategy* was when she was teaching a lesson on integrating reading with writing. This lesson came towards the end of a two-week Greek and Roman mythology unit. She wanted to create a story outline from a previously read myth to show how myths are structured; the students would later create their own myths. Mrs. Powell noted that she had not used this outlining strategy before for structuring a narrative. She said:

> When they come in today we'll talk to them about what we're going to be doing. I'm going to put a chart up on the board and I'm going to take Echo and Narcissus and we're going to fill in the chart to outline this myth. The outline is what they're going to be using to write their own myth. I don't normally use an outline and we've never done an outline before so it's totally different from how they're used to using writing and they're not going to be using their writing folders. On this one I'm actually going to fill in an outline for a story that's already been written as a famous myth. (Lesson 2b10)

She adapted less-frequently when modifying lessons based on *district/school requirements* and what her *materials* suggested to do. An example when she modified a lesson due to a district/school requirement was for the Greek and Roman mythology lesson mentioned above. Unlike this narrative writing activity, the district mandated clarification writing. Mrs. Powell described how her lesson is a modification:

> It's not clarification writing which is what we are asked to do so it's going to be a big change and it goes off totally what the county says . . . a total change from what the district and school requires. For writing they want clarification and this is not clarification. (Lesson 2b10)

Her other less-frequent adaptation was a modification based on what her *materials* suggested to do. This lesson came earlier in the Greek and Roman mythology unit. The students were working on various mythological stories. The unit package kept each of these stories in separate "literature pockets." Mrs. Powell decided to use only a handful of the literature pockets. She said:

> We're doing Greek and Roman mythology and this whole week we've been working on literature pockets. They're making a book with a lot of the Greek and Roman myths in it. But, I'm not using all the literature pockets that are suggested to use in this book. (Lesson 2b5)

Rationales for planning adaptations. Mrs. Powell provided a rationale for each of her planning adaptations (see Table 26).

Table 26

Mrs. Powell's Rationales for Planning Adaptations (5th Grade Class)

	Lesson											
Code	**L1**	**L2**	**L3**	**L4**	**L5**	**L6**	**L7**	**L8**	**L9**	**L10**	**Total**	**%**
Objective not met											0	0%
Challenge/ Elaborate			1					1			2	33%
To teach a specific strategy or skill							1	1			2	33%
To help students make connections											0	0%
Uses knowledge of student(s) or classroom dynamics to alter instruction											0	0%
Checking Student Understanding											0	0%
Anticipation of upcoming difficulty											0	0%
To manage behavior											0	0%
To manage time					1						1	17%
To promote student engagement										1	1	17%
Total	0	0	1	0	1	0	1	2	0	1	6	

Her reported rationales came from four descriptors: (a) *to challenge/elaborate*, (n=2, 33%); (b) *to teach a strategy or skill*, (n=2, 33%); (c) *to manage behavior*, (n=1, 17%); and (d) *to promote student engagement*, (n=1, 17%). She did not report a rationale based on the other descriptors. Within her total rationales, she reported that her adaptations promoted reading comprehension (n=1, 17%), but did not adapt to promote her vision.

Mrs. Powell more-frequently reported rationales—*to challenge/elaborate* and *to teach a strategy or skill*—accounted for 66% of her rationales. An example when she wanted to challenge her students came from the integrated reading and writing lesson from the Greek and Roman mythology unit. She reported this rationale for incorporating narrative writing with her reading unit:

> I'm hoping to do more to integrate things into the curriculum to see what they can do. Creating their own myths is going to be a challenge because they first need to understand the structure and purpose of myths. Then, they'll need to be able to come up with one on their own based on that same structure. (Lesson 2b8)

An example when she wanted *to teach a strategy or skill* came from the same lesson. When she provided and modeled an outline for reading and writing myths, she wanted them to understand certain "story elements" of narrative writing. She said:

> This outline is going to help them see this type of writing . . . writing a myth. It's also going to help them with their general understandings about reading narratives. I figure if I can get some writing in and I can also use the story elements for the EOG. (Lesson 2b8)

Mrs. Powell's less-frequent rationales—*to manage time* and *to promote student engagement*—accounted for 34% of her total reported rationales. An example when she wanted "to manage time" was when she selected certain "literature pockets" from the packaged unit. She reported that following the unit's suggestion to use all of the literature pockets would take too much time. She said:

> It would just take weeks to finish the whole thing. At this point, they're going to have to work on this at home anyway. With all that's going on, I can't do that. It's the end of the year. I've selected one's that will give them a good idea about mythology. (Lesson 2b5)

An example when she wanted "to promote student engagement" was when planning a lesson on cause and effect. She adapted by allowing students to work in groups to come up with a three-leveled chain of causes and effects. For example, one group later came up with:

> I got caught in a freezing-rain storm and got sick. Because I got sick, I had to go to the hospital. Because I went to the hospital, I missed soccer

> practice. Because I missed soccer practice, I could not play in the game. (Lesson 2b10)

Mrs. Powell provided this rationale for allowing them to work in groups:

> I think my kids are getting sick and tired of the EOG review and they're getting real bored and then you lose them. It is just another way to get them involved without shutting-down with what I'm trying to do. Working in groups helps with that. (Lesson 2b10)

She did not provide a rationale for the remaining descriptors.

On-the-fly adaptations. Mrs. Powell made 59 on-the-fly adaptations across 10 lessons in her higher achieving classroom for an average of 5.9 per lesson with a maximum of 14 and a minimum of 1. When looking at her more-frequent adaptations (see Table 27), the table shows that two types accounted for 88% of her on-the-fly modifications: *changes the means by which objectives are met*, (n=30, 51%) and *invents examples, analogies or metaphors*, (n=22, 37%). Her less-frequent on-the-fly adaptations included: (a) *modifies lesson objective*, (n=3, 5%); (b) *suggests a different perspective to the lesson*, (n=3, 5%); and (c) *omits or inserts activity*, (n=1, 2%). She did not *insert a mini lesson* or *change the planned order of instruction* in this classroom.

Table 27

Mrs. Powell's On-the-fly Adaptations (5th Grade Class)

Code	Lesson										Total	%
	L1	**L2**	**L3**	**L4**	**L5**	**L6**	**L7**	**L8**	**L9**	**L10**		
Modifies Lesson Objective		1							2		3	5%
Changes means by which objective is met	6	7	1	3		2		4	3	4	30	51%
Invents examples, analogies, or metaphor	7	2		3	2		1	2	1	4	22	37%
Inserts a mini-lesson											0	0%
Suggests a different perspective to lesson	1			2							3	5%
Omits or inserts activity								1			1	2%
Changes planned order of instruction											0	0%
Total	14	10	1	8	2	2	1	7	6	8	59	

Her more-frequent adaptations—*changes the means by which objectives are met* and *invents examples, analogies, or metaphors*—occurred nearly 9 out of 10

times during the lessons observed. An example when she changed the means by which objectives were met was when she read poems to illustrate how authors use metaphors to enhance their writing. While reading aloud a poem about a teenager, she stopped to have a discussion about how teenagers act so they could better understand the poem. She asked, "Have you ever noticed teenagers? What do they do? How do they act?" She received responses and illustrations from students about how teenagers 'flip their hair' and 'have attitudes' (Lesson 2b10). Another example was during a shared reading activity using Norton Juster's book *The Phantom Tollbooth*. Just as Mrs. Powell began reading a new chapter, she stopped and said, "Let's go back a page before." She then continued to flip further back (approximately four pages) and began reading from there. Though they had read that section of the book days before, she felt it important to re-read certain parts and summarize (Lesson 2b4).

Another example when she *changed the means by which objectives were met* was during another shared-reading activity using *The Phantom Tollbooth*. At the beginning of the novel, Mrs. Powell had students create a map of all the places the characters would travel throughout the book. During this lesson, a student was confused as to where the story was currently taking place. She stopped the lesson and announced, "Be sure to look at your map if you're confused. Use the

map to help you. A lot of times it will help your brain to figure out what they are." When the student was still confused, she had students get out their "graphic organizers" that they had been using to plot the course of the characters' journey. After checking their graphic organizers and a short discussion, the class was back on track (Lesson 2b2).

Mrs. Powell frequently *invented examples, analogies, and metaphors*. An example was when she was preparing students for the EOG using a practice-test booklet. Before reading the next reading selection, she discussed with the students what "good readers" do. She said, "Before reading, good readers ask questions; and during, it's all about making sense." She then provided an example to the classroom by explaining her difficulties with Charles Dickens books:

> I've always had a very difficult time reading him. I'll read it and not comprehend it . . . like I'm not paying attention. And then I would have a test or something in school on it and it didn't make sense to me because I didn't focus on what it was saying. (Lesson 2b9)

Another example was when the class read the poem about teenagers (noted above). The poem had to do with a dysfunctional family. Mrs. Powell clarified that, "No family is perfect, and a lot of us might have problems just like this

character in the poem." She then led them into a discussion how every family has problems. Her less-frequent adaptations accounted for 12% of the remaining total.

Rationales for on-the-fly adaptations. Mrs. Powell provided a rationale for each of her on-the-fly adaptations. When looking at Table 28, the frequencies in which she provided certain rationales can be grouped into two categories, more-frequent and less-frequent. The first category represented her more-frequent rationales: (a) *to help students make connections*, (n=25, 42%); (b) *to teach a strategy or skill*, (n=11, 19%); and (c) *uses the knowledge of student(s) or classroom dynamics to alter instruction* (n=7, 12%). The second category represented less-frequent rationales: (a) *checking for student understanding* (n=3, 5%); (b) *anticipation of upcoming difficulty* (n=2, 3.5%); (c) *to manage time* (n=3, 5%); (d) *to promote student engagement* (n=3, 5%); (e) *to manage behavior* (n=2, 3%); and (f) *to challenge/elaborate* (n=2, 3%). She did not report the rationale *objective not met*. Within her total rationales, she reported that her adaptations promoted reading comprehension (n=32, 54%), but did not adapt to promote her vision.

Table 28

Mrs. Powell's Rationales for On-the-fly Adaptations (5th Grade Class)

Codes	Lesson										Total	%
	L1	**L2**	**L3**	**L4**	**L5**	**L6**	**L7**	**L8**	**L9**	**L10**		
Objective not met											0	0%
Challenge/ Elaborate				1	1						2	3%
To teach a specific strategy or skill	2	3		1				1	3	1	11	19%
To help students make connections	5	4		5	1		1	3	1	5	25	43%
Uses knowledge of student(s) or classroom dynamics to alter instruction	2	1		1				1		2	7	12%
Checking Student Understanding	2	1									3	5%
Anticipation of upcoming difficulty	1	1				1					3	5%
To manage behavior						1			1		2	3%
To manage time			1					1	1		3	5%
To promote student engagement	2							1			3	5%
Total	14	10	1	8	2	2	1	7	6	8	59	

Mrs. Powell's most frequently reported rationale was *to help students make connections*. An example was when she had the discussion about teenagers (mentioned in the section above). She provided this rationale for making the adaptation:

> It was because of the boy in the poem . . . it helped them understand the metaphor of the boy. They had to realize he was a teenager dealing with parents who had a divorce. That's why the author put that line in the poem . . . and that was the metaphor. The discussion was to help them understand line in the poem. (Lesson 2b10)

Another example was when she began reading a new chapter from *The Phantom Tollbooth* (mentioned in the section above). She then decided to go back to the last time they read to help them make connections between the two chapters. She said:

> *The Phantom Tollbooth* is a really difficult novel especially for fifth graders and it's even confusing for adults and we hadn't read in a few days so I just thought it would be better if we started a little bit earlier in the novel. I could tell just by reading the first sentence in the new chapter that they needed to connect it to the previous one. (Lesson 2b4)

She also adapted *to teach a strategy or skill*. An example was when she had the students get out their maps and graphic organizers from *The Phantom Tollbooth* novel (mentioned in the section above). She provided this rationale:

> Because a lot of times . . . this novel is really difficult; it's even hard for me to remember and I've taught it a lot. It's like a non-fiction text and when you look back sometimes it's easier to look over the pictures and diagrams, whatever chart that helps you. And that helps them to see it in their head and keep a sequence of where they're at. They need to know how to use the different resources they're given. (Lesson 2b2)

Another example was when she had the discussion about what "good readers" do (mentioned in the section above). She provided the example about her difficulties with Charles Dickens books. She provided this rationale for having the discussion:

> I wanted to tell them that if something doesn't make sense when reading, you've got to go back and re-read it, Because I didn't go back and re-read it, a lot of times I didn't understand it. So I wanted to let them know that they need to monitor what they're doing. (Lesson 2a9)

The last descriptor from her more-frequent rationales was *using the knowledge of student(s) or classroom dynamics to alter instruction*. An example was when she had the discussion about how all families have their problems (mentioned in the section above). She provided this rationale for comparing the family in the poem to all families:

> The poem was about divorce and a dysfunctional family and I have several kids . . . quite a few kids from divorced families and they're sitting there so I thought I'd bring that up during this talk. I started thinking it

> would be a good time to bring that up. I want my kids to realize that we live in a real world and everybody has problems and we can overcome them and I saw some of them looked sort of sad so I thought I'd bring that up. (Lesson 2b10)

Mrs. Powell's less-frequent rationales came from the seven remaining descriptors. The maximum number of adaptations from each descriptor was three and the minimum was zero.

Student outcomes. In this section I summarized students' change in understanding first at the class level, then at the student level. At the student level, I also categorized the type of change and provided excerpts from their post-study interviews. Based on the doubling criterion (see Table 29), a change occurred in six out of nine comparisons.

Table 29

Response Frequency by Student (Mrs. Powell's 5th Class)

	Before		During		After		Total	
	Pre	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**
Tony (High Achieving)	2	3	5	2	2	3	9	8
Elli (High Achieving)	2	2	3	7	2	4	7	13
Jillian (High Achieving)	1	5	1	4	2	4	4	13

Tony showed a change *during* the reading activity, Elli showed a change *during* and *after* the reading activity, and Jillian showed a change *before*, *during*, and *after* the reading activity.

Tony showed a change *during* the reading activity but in the opposite direction; during his pre-study interview, he responded more frequently than in his post-study interview. Elli offered new strategies *during* the reading activity by "using the parenthesis to help pronounce words, or asking a teacher or friend for help" and *after* the reading activity by "discussing the chapter with friends and answering the questions." Jillian provided additional strategies in all of the categories. *Before* the reading activity she added by "previewing the test questions, looking at the pictures, title and subtitles, and vocabulary." *During* the reading activity she added "thinking about what the words trying to teach me, looking up science words, or asking the teacher about a word I don't understand." *After* the reading activity she said that she likes review through discussion:

> I do think about it in class with each other and when we're thinking about it orally it actually helps you understand better. Because you see other people's point of view and that also helps me because you get a different point of view. You see how they felt and you see how they saw the prediction and how they felt and you think 'I didn't know that. I didn't know that was in the story.'

Summary. In sum, for her fifth-grade class Mrs. Powell adapted 6 times across 10 lessons during planning, mostly modifying *previous lessons* or *instructional strategies*. She most often reported that her planning adaptations were due to teaching a *specific strategy or skill*, or by *challenging or elaborating*. She made 59 on-the-fly adaptations, the majority of them by *changing the means by which objectives were met* and *inventing examples, analogies, and metaphors*. She most often reported that her on-the-fly adaptations were due to *helping students make connections, teaching a specific strategy or skill, or using the knowledge of student(s) or classroom dynamics to alter instruction.* Within her total adaptations—both when planning and on-the-fly—51% were designed to promote reading comprehension and 0% were designed to promote her vision. Based on the doubling rule for students' change in understanding of reading comprehension, students showed a change in 6 of 9 possible cells when participating in the pre and post-study reading activity. Their change in understanding occurred in random frequencies, making it difficult to attribute their growth to specific adaptations.

Mrs. Powell's Class Comparison

Planning adaptations. Mrs. Powell made 9 planning adaptations across her 20 lessons for an average of .45 with a maximum of 2 and a minimum of 0.

Overall, she made twice as many adaptations in her fifth versus her third-grade classrooms (see Table 30).

Table 30

Mrs. Powell's Planning Adaptations (Class Comparison)

Code	3rd Grade Class	5th Grade Class	Total	%
District/School Requirement	1	1	2	22%
Materials	2	1	3	34%
Previous Lesson	**0**	**2**	**2**	**22%**
Instructional Strategy	**0**	**2**	**2**	**22%**
Total	3	6	9	

This difference came mainly from her *previous lesson* and *instructional strategy* adaptations. Because of her limited number of planning adaptations, it is difficult to make any inferences regarding the distribution of her modifications across these three types of adaptations.

Rationales for planning adaptations. Mrs. Powell provided 9 rationales between her third and fifth-grade classrooms. Her rationales (see Table 31) were organized in two categories—more-frequent and less-frequent. The more-frequent category consisted of two rationales: *to teach a strategy or skill* (n=4, 44%) and *to challenge/elaborate* (n=3, 33%)—these rationales accounted for 77% of her total. The remaining was placed in the less-frequent category.

Table 31

Mrs. Powell's Rationales for Planning (Class Comparison)

Code	3rd Grade Class	5th Grade Class	Total	%
Objective not met	0	0	0	0%
Challenge/ Elaborate	1	2	3	33%
To teach a specific strategy or skill	2	2	4	44%
To help students make connections	0	0	0	0%
Uses knowledge of student(s) or classroom dynamics to alter instruction	0	0	0	0%
Checking Student Understanding	0	0	0	0%
Anticipation of upcoming difficulty	0	0	0	0%
To manage behavior	0	0	0	0%
To manage time	0	1	1	11%
To promote student engagement	0	1	1	11%
Total	3	6	9	

As stated above, it is difficult to make any inferences regarding the distribution of her rationales because of the limited numbers; however, the majority of her rationales for planning adaptations favor cognitive factors. Her less-frequent rationales—*to manage time* and *to promote student engagement*—accounted for 22% of the remaining reported rationales.

On-the-fly adaptations. Mrs. Powell made 117 on-the-fly adaptations across 20 lessons in 2 classrooms for an average of 5.85 per lesson with a

maximum of 14 and a minimum of 1. When looking at these adaptations, her majority fell within two types—*changes the means by which objectives are met*, (n=64, 55%) and *invents examples, analogies or metaphors*, (n=36, 31%). Furthermore, when looking at differences between classrooms, Mrs. Powell provided more adaptations with invents example, analogies, and metaphors with her fifth versus third-graders (see Table 32).

Table 32

Mrs. Powell's On-the-fly Adaptations (Class Comparison)

Code	3rd Grade Class	5th Grade Class	Total	%
Modifies Lesson Objective	0	3	3	3%
Changes means by which objective is met	34	30	64	55%
Invents examples, analogies, or metaphor	14	22	36	31%
Inserts a mini-lesson	2	0	2	2%
Suggests a different perspective to lesson	1	3	4	3%
Omits or inserts activity	6	1	7	6%
Changes planned order of instruction	1	0	1	1%
Total	58	59	117	

Her remaining 17 modifications were spread across 5 different types of modifications. Most notably, two of these adaptations—*changes means by which objectives were met* and *omits or inserts activity*—were found more frequently with the third-grade class and one adaptation—*invents examples, analogies, or*

metaphors—was found more frequently with the fifth graders. None of her interview data provided any rationale for these differences.

Rationales for on-the-fly adaptations. Mrs. Powell provided 117 rationales between her third and fifth-grade classes (n=58 for third-grade, n=59 for fifth-grade). Her rationales (see Table 33) were organized in two categories—more-frequent and less-frequent. The more-frequent rationales—*to help students make connections*, (n=43, 37%), *to teach a specific strategy or skill*, (n=29, 25%), and *uses knowledge of student(s) or classroom dynamics to alter instruction*, (n=16, 14%)—accounted for 76% of her total reported rationales.

Table 33

Mrs. Powell's Rationales for On-the-fly Adaptations (Class Comparison)

Code	3rd Grade Class	5th Grade Class	Total	%
Objective not met	0	0	0	
Challenge/Elaborate	0	2	2	2%
To teach a specific strategy or skill	18	11	29	25%
To help students make connections	18	25	43	37%
Uses knowledge of student(s) or classroom dynamics to alter instruction	9	7	16	14%
Checking Student Understanding	3	3	6	5%
Anticipation of upcoming difficulty	2	3	5	4%
To manage behavior	2	2	4	3%
To manage time	4	3	7	6%
To promote student engagement	2	3	5	4%
Total	58	59	117	

Her more-frequent rationales suggest that she adapted more often to promote student cognition. Her less-frequent rationales accounted for the remaining 24%.

Most of her rationales shared an even distribution between the two classrooms. Two rationales, however, were either reported more for the third-grade or fifth-grade classroom. For example, Mrs. Powell adapted to *teach a specific strategy or skill* more frequently (39% more often) for her third-graders than for her fifth-graders. Conversely, she adapted *to help students make connections* more frequently (28% more often) for her fifth-graders than for her third-graders.

Student outcomes. When comparing the student outcomes between classes, there was little evidence that her teaching practices and adaptations impacted one class more than the other. The data showed that both classes responded more often in their post-study interviews. Based on the doubling rule, Mrs. Powell's fifth-grade class showed a change in understanding *before* the reading activity (see Table 34).

Relationship between adaptations and student outcomes. When looking at the frequency of Mrs. Powell's adaptations promoting reading comprehension and the frequency of strategies her students provided, it was difficult to establish a definitive relationship between the two.

Table 34

Response Frequency by Class (Mrs. Powell's Class Comparison)

	Before		**During**		**After**		**Total**	
	Pre	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**
3rd Grade Class	4	9	11	15	5	9	20	33
5th Grade Class	**5**	**10**	9	13	6	11	20	34

For example, during her lessons for her third-grade class, she adapted 38 times (62%)—through planning and on-the-fly—to promote the understanding of reading comprehension. Likewise, during her lessons for her fifth-grade class, she adapted 33 times (51%). Based on the student frequency chart above (see Table 34), the reading comprehension strategy usage between the classrooms were somewhat similar. This neither supported nor rejected assumption that more adaptations would equate to more change in the understanding of strategy use. Because the frequency of her adaptations promoting reading comprehension were similar in both classes and the frequency of student responses were also similar, it was difficult to determine the whether these frequencies were related.

Comparison of Teachers

Planning adaptations. Table 35 gives the number of planning adaptations by each teacher across their two types of classrooms. As noted, there were a total of 37 planning adaptations with the majority coming from Mrs. Cook (3 to 1 ratio)—28 planning adaptations from Mrs. Cook and 9 planning adaptations from Mrs. Powell. A possible explanation for the abundance of planning adaptations from Mrs. Cook was that she taught the same lesson to two fifth grade classes each day, while Mrs. Powell taught two separate lessons, one to her third-grade class and one to her fifth-grade class.

Table 35

Planning Adaptations (Teacher Comparison)

Code	Mrs. Cook	Mrs. Powell	Total	%
District/School Requirement	**5**	**2**	7	19%
Materials	**6**	**3**	9	24%
Previous Lesson	**11**	**2**	13	35%
Instructional Strategy	**6**	**2**	8	22%
Total	28	9	37	

Most of Mrs. Cook's modifications for her lower achieving class were due to modifying a *previous lesson*—taught to her higher achieving class—in which she

taught earlier that morning. The lessons observed in Mrs. Powell's third-grade class were entirely different than the lessons observed in her fifth-grade class.

The most common planning adaptation—adapting a *previous lesson*—accounted for 35% of all planning adaptations. Again, this could be due to Mrs. Cook's similar lesson plans for her two classes in which she would commonly adapt her afternoon lesson based on her experiences with the morning lesson. The remaining three categories were somewhat evenly distributed among the remaining 3 options (19%, 24% & 22% for changes based respectively on *district or school requirements*, *materials*, and *instructional strategies*).

Rationales for planning adaptations. Table 36 gives the number of planning rationales by each teacher across their two types of classrooms. The more-frequent rationales were *to teach a specific strategy or skill*, (n=10, 27%) and *uses knowledge of student(s) or classroom dynamics to alter instruction*, (n=10, 27%).

Surprisingly, neither teacher reported a rationale *to help students make connections* although they provided many of these types of rationales for on-the-fly adaptations. Because Mrs. Cook adapted more during planning, she provided more rationales. She also reported more rationales in every descriptor with exception *to challenge/elaborate*.

Table 36

Rationales for Planning Adaptations (Teacher Comparison)

Code	Mrs. Cook	Mrs. Powell	Total	%
Objective not met	0	0	0	0%
Challenge/ Elaborate	0	3	3	8%
To teach a specific strategy or skill	6	4	10	27%
To help students make connections	0	0	0	0%
Uses knowledge of student(s) or classroom dynamics to alter instruction	10	0	10	27%
Checking Student Understanding	1	0	1	3%
Anticipation of upcoming difficulty	3	0	3	8%
To manage behavior	1	0	1	3%
To manage time	2	1	3	8%
To promote student engagement	5	1	6	16%
Total	28	9	37	

On-the-fly adaptations. In this study, Mrs. Cook had a maximum of 16 on-the-fly adaptations for any one lesson to a minimum of 2 with an average of 6.1. For Mrs. Powell, her maximum was 14 on-the-fly adaptations and a minimum of 1 with an average of 5.85 per lesson. Both teachers demonstrated far more on-the-fly adaptations than in previous studies.

Table 37 gives the number of adaptations by each teacher across their two types of classrooms. As noted, there were a total of 239 adaptations: 122 with Mrs. Cook and 117 for Mrs. Powell. Two adaptations—*changes means by which an objective was met* and *invents examples, analogies, or metaphors*—comprised 79% of

all adaptations for the two teachers in both types of classrooms. Moreover, these two adaptations appeared in at least 80% of all the lessons. None of the remaining adaptations comprised more than 6% of the total adaptations.

Table 37

On-the-fly Adaptations (Teacher Comparison)

Code	Mrs. Cook	Mrs. Powell	Total	%
Modifies Lesson Objective	9	3	12	5%
Changes means by which objective is met	**56**	**64**	**120**	**50%**
Invents examples, analogies, or metaphor	**31**	**36**	**67**	**28%**
Inserts a mini-lesson	2	2	4	2%
Suggests a different perspective to lesson	9	4	13	5%
Omits or inserts activity	11	7	18	8%
Changes planned order of instruction	4	1	5	2%
Total	122	117	239	

A comparison of the totals for each teacher by type of classroom (78 x 44 & 58 x 59) revealed a difference (Chi Square: χ=.036). Mrs. Cook used more adaptations in her higher achieving classroom than she used in her lower achieving classroom. Based on her interviews, she used more adaptations with higher level achieving students because of her confidence in their ability to

handle greater responsibility. Her lessons for the lower achieving students offer them fewer choices and were more prescribed.

Mrs. Powell's frequency of adaptations was consistent for both classes. Based on an informal evaluation, however, the means might mask an important difference. For example, with her fifth-grade class, in four of her lessons the students studied independently without her direct assistance. Therefore, during these lessons, only one or two adaptations were noted. If you removed these lessons from her total, her average number of adaptations would have increased from 5.8 to 8.8, making it significant. Thus, both teachers appeared to provide more adaptations when providing direct assistance to the higher achievers. In addition to the two most frequent adaptations noted earlier, Mrs. Cook *suggested a different perspective* more frequently with her higher achievers than she did with her lower achievers.

I could not use a Chi Square because too many of the cells had less than five occurrences. Thus, I looked at the extent to which the numbers in a particular cell deviated from the average for that adaptation by at least two standard deviations. None of the comparisons met this criterion. Thus, no apparent differences appear to exist across the different classrooms for the two

teachers. Thus, when comparing the total number of adaptations for each teacher, no differences exist.

Rationales for on-the-fly adaptations. In this study, 72% of their reported rationales came from three descriptors (see Table 38): (a) *to help students make connections*, (n=78, 33%), (b) *to teach a specific strategy or skill*, (n=48, 20%) and, (c) *uses knowledge of student(s) or classroom dynamics to alter instruction*, (n=45, 19%). The less-frequent rationales came from the remaining four descriptors.

Table 38

Rationales for On-the-fly Adaptations (Teacher Comparison)

Code	Mrs. Cook	Mrs. Powell	Total	%
Objective not met	4	0	4	2%
Challenge/ Elaborate	**7**	**2**	9	4%
To teach a specific strategy or skill	19	29	48	20%
To help students make connections	35	43	78	33%
Uses knowledge of student(s) or classroom dynamics to alter instruction	**29**	**16**	45	19%
Checking Student Understanding	4	6	10	4%
Anticipation of upcoming difficulty	7	5	12	5%
To manage behavior	4	4	8	3%
To manage time	5	7	12	5%
To promote student engagement	8	5	13	5%
Total	122	117	239	

When looking at the frequency of their rationales, there existed only two measurable differences between the two teachers: *to challenge/elaborate* and *uses knowledge of student(s) or classroom dynamics to alter instruction*. Mrs. Cook adapted more often (n=7) than Mrs. Powell (n=2) to challenge/elaborate. This difference could be explained due to Mrs. Powell providing these same rationale descriptors during the planning stage, rather than on-the-fly. Mrs. Cook also adapted more often (n=29) than Mrs. Powell (n=16) by *using knowledge of student(s) or classroom dynamics to alter instruction*. Throughout her interview transcripts, Mrs. Cook provided rationales where she explicitly adapted based on students' personalities and abilities.

Student outcomes. When comparing the student outcomes between teachers, there was inconclusive evidence as to how their teaching practices and adaptations impacted their students' change in understanding reading comprehension (see Table 39).

Table 39

Student Response Frequency (Teacher Comparison)

	Before		**During**		**After**		**Total**	
	Pre	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**
Mrs. Cook	12	17	18	26	12	20	42	63
Mrs. Powell	9	19	20	28	11	20	40	67

The data showed similar results in that both teachers' classes responded more often in their post-study interviews. Based on the doubling rule, however, Mrs. Powell's students showed a change in understanding *before* the reading activity.

Relationship between adaptations and student outcomes. When looking at the frequency of both teachers' adaptations promoting reading comprehension and the frequency of strategies their students provided, it was difficult to establish a definitive relationship between the two. For example, Mrs. Cook adapted 64 times (43%)—through planning and on-the-fly—to promote the understanding of reading comprehension. Likewise, Mrs. Powell adapted 71 times (56%).

Based on the student frequency chart above (see Table 39), the reading comprehension strategy usage between the classrooms were somewhat similar. This neither supported nor rejected my assumption that more adaptations would equate to more change in the understanding of strategy use. Because the frequency of their adaptations promoting reading comprehension were somewhat similar and the frequency of student responses were also similar, it was difficult to determine whether these frequencies were related.

Summary of student outcomes (entire study). Table 40 displays the number of strategies reported by students at three achievement levels in four classrooms; prior to, during, and after reading a text, at the start and end of my study. According this table, across all classrooms, differences occurred in 4 of the 9 comparisons: the high achievers demonstrated a difference with their strategy use *after* reading: the average achievers showed a change *before* and *during* the reading; while the lower achievers changed strategy use *before* reading.

Table 40

Student Response Frequency (All Students)

	Before		During		After		Total	
	Pre	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**
High Achieving	8	9	18	17	6	13	32	39
Medium Achieving	5	11	10	21	8	13	23	45
Low Achieving	8	16	10	16	9	14	27	46
Total=212	21	36	38	54	23	40	82	130

Because there was only one student at each achievement level in each classroom, traditional parametric analyses were not appropriate (Howell, 2010); instead, I looked for differences where their reporting of strategies doubled from the start of to the end of my observations. My only other option was to use Chi Square but this method of analysis has two disadvantages: first, it treats data as

categorical and second, there were insufficient frequencies in each cell at the main unit of analysis—the classroom. Chi Square requires a minimum of 5 in each cell and classroom data failed to meet this criterion.

Based on frequency data, students' showed a change in the number of responses. My analysis revealed that students referenced strategy use 82 times during their pre-study interviews and 130 times during their post-study interviews. These types of gains were seen at all units of analysis (i.e. class, between classes, and between teachers).

CHAPTER V

DISCUSSION

The purpose of my study was to investigate two teachers' planning and on-the-fly adaptations and rationales for whole-group reading instruction. Within their rationales, I examined the extent to which their adaptations were designed to promote their teaching vision and reading comprehension. In addition, I looked at students' understanding of reading comprehension and whether a relationship existed between their understanding and teachers' adaptations. In this chapter, I first summarize the findings of this study relative to my research questions. I then discuss the next logical steps for TAT research based on my study's findings. Finally, I examine the implications for educational practice.

Despite the many appealing qualities suggested by theorists of thoughtfully adaptive teaching, no empirical data existed to substantiate those claims. Even initial attempts at providing this evidence were not encouraging. Prior to my study, Duffy and his colleagues conducted over 150 lesson observations with 24 classrooms (Parsons et al., 2010). They found teachers'

thoughtful adaptations occurred infrequently. This low number was thought to be related to the district's emphasis on teaching to the test. As a result of this pressure, teachers felt constrained to stick to their lesson plans—some of which were provided by the district as a way to standardize instruction. Another possible reason was teachers' amount of experience. Participating teachers might have lacked the expertise or vision to adapt because they were beginning teachers. As a result, my study included more experienced teachers in a different school district where less emphasis was placed on teaching-to-the-test. My teachers felt comfortable in regards to creating their lesson plans and adapting them if needed. The hope was that by conducting research in a school with less emphasis on teaching-to-the-test and observing teachers in classrooms where they exhibited the expertise to recognize and to act upon opportunities to adapt, I would be able to provide empirical evidence for the existence of thoughtful adaptations.

Teachers' Planning & On-the-fly Adaptations

Compared to previous TAT studies, this study's teachers adapted more frequently during instruction. There was a three-fold increase in the number of instructional adaptations with the maximum of adaptations during one lesson reaching sixteen. Pressures to teach-to-the-test appeared to influence the number

of a teacher's on-the-fly adaptations. When teachers felt less constrained by district/school-mandated policies, they more frequently acted upon the opportunities to adapt. This finding provides quantitative support for the thoughtfully adaptive teaching literature's claims.

Despite initial predictions regarding adaptations during planning (Clark & Peterson, 1986; Clark & Elmore, 1981; Shavelson & Stern, 1981), this study did not find a significant number of adaptations during planning. Teachers adapted approximately five times less often during planning than when they did during instruction. This discrepancy may relate to differences between the two settings' context. Because of the inherent ambiguity of providing instruction on-the-fly to a group of students with varying abilities and interests, teachers must respond spontaneously to issues of multidimensionality and unpredictability (Doyle, 1977). Planning lacks this unpredictability because students are not physically present to challenge the validity of teachers' decisions. Evidence from an informal evaluation of teachers' statements during the planning and on-the-fly interviews confirmed differences between these two contexts; planning posed far less ambiguity for teachers than did their actual lesson instruction.

During planning, teachers organized lessons in metacognitive ways to improve student learning. Most adaptations were based on *previous lessons*,

followed by changes from how the *materials* recommended teaching the lesson, and a change in their *instructional strategies*. When asked why they decided to make the adaptation, they mostly wanted to *teach a specific strategy or skill*, or they used the *knowledge of students and classroom dynamics* to alter instruction. The rest of the categories for coding rationales were rarely used. The promotion of students' learning appeared to be the driving force for their planning adaptations.

During instruction, teachers primarily adapted to *change the means by which they met a lesson's objectives* or *invented examples, analogies, or metaphors* because they wanted to *teach a specific strategy or skill*, to *help students make connections*, or they used the *knowledge of students and classroom dynamics* to alter instruction. This data provides empirical support for the claims made by different theorists regarding the existence of thoughtfully adaptive teaching. This data also stands in contrast to our earlier studies in high stakes accountability districts where teachers only made one-to-two adaptations per lesson. Thus, there is quantitative support for thoughtfully adaptive teaching.

When teachers promoted multiple interpretations of a text, presented content at a higher level, and encouraged student conversations, they tended to make more adaptations and each adaptation served a different purpose. For

example, when Mrs. Cook used the text, *The Wretched Stone*, she made 16 adaptations based on her purpose for reading; however, the nature of her adaptations differed as a function of the story's structure. At the lesson's start, she emphasized what inferences students needed to make to understand the text's hidden meaning; then during the middle of the story she adapted to promote the engagement of different students; finally, at the end of the story, she focused on the text's hidden message as it related to students' personal lives. Additionally, teachers adapted according to students' ability and this type of adaptation generally occurred between classrooms. If teachers perceived students' ability level to be high, they wanted to challenge them by having them read for the story's hidden message; if students lacked this ability, they were satisfied if students understood the more literal interpretation of the story and did not press as vigorously for a deeper understanding. With the high achievers, teachers believed they were motivated by the challenge; with the lower achievers, they avoided too great a challenge because it would undermine their motivation.

Explanations for the lack of any adaptations appeared related to two factors. When teachers were preparing students for testing, the content was at a lower cognitive level and students were not expected to discuss answers. In such

instances, similar to what was found with the initial studies (Parsons et al., 2010), fewer adaptations occurred. Minimal ambiguity existed in these lessons as the students practiced identifying what they needed to understand to be successful on the test. A lower number of adaptations also occurred when teachers gave students the opportunity to work on certain projects (e.g., Greek/Roman Mythology, Dinosaurs). The projects were at a higher cognitive level than the test preparation lessons, but few adaptations occurred because students were able to work independently. In such instances, multiple interpretations were expected and students talked frequently to each other; however, teachers simply noted their involvement without making any overt verbal statements. To the extent that students had the ability to work at higher cognitive levels on independent projects, teachers' roles changed because they mainly observed students' engagement with their studies.

In summary, the quantity and quality of a teacher's adaptations appeared to be influenced by the nature of the lesson. Teachers adapted more frequently and their adaptations served different purposes when they taught at higher cognitive levels and required multiple interpretations from students. The only times adaptations were not frequent was when students had the ability to learn independently without teacher assistance. This finding underscores the need to

continue to look for better ways to evaluate why adaptations occur when they do and why one adaptation might be more qualitatively thoughtful than another.

Teachers' Adaptations and Reading Comprehension

A portion of this study focused on the relationship between teachers' adaptations and students' understanding of reading comprehension. Approximately one-half of all teachers' adaptations—planning and on-the-fly—were designed to promote students' reading comprehension. When I looked at students' change in understanding, the frequency in which they reported using reading strategies increased by at least 50% from the beginning to the end of the study. When I compared the pre- and post-student response frequencies, however, I did not find a definite relationship between teachers' adaptations and students' change in understanding of reading comprehension. Several reasons exist to explain this finding. First, pre- and post-interviews did not allow me to trace an individual student's change back to an individual lesson or to a teacher's adaptation. Second, because students received other forms of reading instruction beyond whole-group instruction (i.e., literacy circles, guided reading, independent reading, etc.), any improvements might relate to other elements of their reading instruction. Third, increases from the pre- to the post- might be related to students' comfort with my presence in their classrooms. Regardless of

the reason, no associations were discovered between teachers' adaptations and students' understanding of reading comprehension demonstrated during post-study interview.

Teachers' Adaptations and Vision

Another portion of this study investigated the relationship between teachers' adaptations and their vision for teaching. The purpose for investigating teachers' visions was the assumption that when teachers possess a clear and focused vision, they would be more prone to adapt with a particular course of action in mind. Thus, teachers would plan and implement instruction according to their goals and resist pressures to teach in a manner inconsistent with long-range plans. As stated in the results section, teachers failed to describe a clear and focused vision. Instead, their vision statements were loosely defined and ambiguous. Moreover, out of 276 planning and on-the-fly adaptations, teachers only referred spontaneously to their visions on four occasions. Thus, there were a few occasions where teachers' adaptations appeared to be driven by their vision for teaching. Because both teachers' vision statements were general in description, with multiple foci, I could not be sure without speculation as to how many times they adapted based on some aspect of their visions. As a result, I was left with little evidence regarding whether adaptations rooted in their vision

because they simply did not mention it spontaneously when reporting their rationales.

Summary of Findings

This study provides empirical support for the existence of thoughtfully adaptive teaching for both planning and on-the-fly adaptations. This data stands in contrast to earlier studies in high stakes accountability districts where teachers made far fewer on-the-fly adaptations per lesson. The increase in adaptations could have been due to the moderate attention this district gave towards accountability standards; that is, these teachers felt less pressure to conform to curricular mandates as observed in previous TAT studies. Differences were noted in the teachers' purposes for adapting: some related to the structure of the story, others related to teachers' perceptions of students' abilities, and others related to whether teachers were preparing students for tests or allowing them to work on independent projects. Over half of all adaptations focused mainly on reading comprehension. Sometimes they did this by looking at a particular word or passage, sometimes they focused on the entire text, and sometimes they focused on students' personal lives. A relationship could not be determined between these adaptations and students' change in understanding of reading

comprehension. Additionally, a relationship could not be determined between teachers' adaptations and their vision statements.

Implications

The first set of implications relate to the relationship between adaptations and students' outcomes. In this study, no relationship was discovered between the reported use of different reading strategies and teachers' adaptations. Students reported different reading strategies but no link existed between what teachers did in a particular lesson and students' use of strategies. To understand this link between teachers' adaptations and students' understanding, more attention should be directed in future studies at the lesson's objectives. Researchers first would need to identify the teachers' learning objectives for each lesson. Then, they need track and confirm teachers' planning and on-the-fly adaptations as they relate to these objectives. Hopefully, this tracking could occur across continuous lessons. Finally, students need to be interviewed to match their understanding to the teacher's objectives.

These changes would require greater flexibility because the outcome could change from lesson to lesson and would not be known to the researcher prior to the study. For example, during a pre-lesson interview a teacher's objective might be for her students to understand poetry by using inferencing

strategies. During the lesson, researchers would note adaptations that specifically promoted the lesson's objective. After the lesson, researchers would then interview students for their understanding of the lesson. The next lesson's objective, however, might be using dictionary skills to understand expository text. In this case, the protocol for collecting data would be the same. Instead of having an a priori student outcome (i.e., student understanding of reading comprehension), researchers would evaluate student outcomes based on students' understanding of the teachers' lesson objectives. This would allow researchers to investigate the alignment of teachers' lesson objective(s), their adaptations, and the extent to which students understood the lesson.

By linking thoughtfully adaptive teaching to student outcomes, researchers must also evaluate the quality of teachers' adaptations—the extent to which they are metacognitive and connected to student outcomes (Duffy, Miller, Howerton, & Williams, 2010). Teachers' rationales for their adaptations were not rated according to their thoughtfulness (as was done in previous TAT studies); however, teachers' comments in this study reinforced the need for researchers to continue with efforts in this area. Teachers' adaptations rationales shed light on their concerns to meet students' different needs and interests, and upon the complexity of thoughtfully adaptive teaching. Researchers need to develop a

way to evaluate the complexity of this phenomenon if we are to understand both the quantity and quality of teachers' adaptations.

An alternative hypothesis is the possibility that we cannot look for quality in an individual rationale but have to look at the overall lesson—did the teacher match her planning adaptations to her on-the-fly adaptations and did the kids understand what the teacher wanted them to do and value her purpose? Perhaps the quality is whether there was congruence (relative to the lesson objective) across the phases of a lesson? Additionally, there might be levels of congruence. For example, a higher-level congruence would be when the teacher wants to teach inference to help kids understand a particular life lesson (as in *The Wretched Stone* lesson example) and the students understand what she is trying to do. An example of a lower-level congruence would be when the teacher plans to teach test taking strategies, her on-the-fly adaptations focus on this goal, and the students restate the same purpose in post-lesson interviews. Perhaps this distinction will help researchers to understand the difference between 'hot' and 'cold' cognitions (Pintrich et al., 1993).

Researchers need to link teachers' adaptations to students' standardized test performances. Such a measure, however indirect, is essential given the present high-stakes accountability context (Darling-Hammond, 2010).

Administrators need to understand the relationship among multiple measures if they are to meet the dual demand of demonstrating students' learning and their performances on accountability measures (Darling-Hammond, 2010). Researchers need to evaluate the extent to which planning and on-the-fly adaptations are related to students' understanding of a lesson's objectives as well as their future performances on different accountability measures.

Future TAT research must also reconsider the ways teachers' visions impact the way they adapt. The main purpose for including teacher visioning as a new element in TAT studies was because the literature linked the ownership of a strong vision to a teacher's ability to resist curricula mandates. Except for individual lessons, teachers did not appear to resist curriculum directives to teach-to-the-test in every instance. The closer the lesson was to the upcoming testing, the more teachers conformed to these pressures. Regardless, strong evidence does not exist to support the initial assumption regarding a link between resistance and a teacher's vision. The strongest explanation for this finding might be the lack of a focused vision with any of the teachers. Hammerness (2001) linked an amorphous vision with the tendency to go along with curricular mandates because such teachers lacked the conviction to resist or the structure to notice when their instruction was not aligned with their vision.

Teachers in this study fit into this category. Once again, researchers might increase their understanding of a 'hot' cognition by studying teachers with more focused visions.

The last implication relates to teacher education. To ensure teachers are making thoughtful adaptations—that their adaptations are purposefully aligned with the task—teachers should have a clear understanding of what they are trying to accomplish with their short- and long-term goals. Teacher educators prepare future teachers by helping them learn the various ways of teaching. This includes teaching pre-service teachers' content knowledge and pedagogical content knowledge. Teacher educators also do well in explaining to their students that teaching is a complex process—that there is more than just teaching the content. In addition to passing on the declarative and procedural knowledge of teaching, more efforts need to be directed towards teaching as a conditional knowledge. By helping pre-service teachers understand the variety of decisions they will need to make, the concept of equipping them with conditional knowledge becomes more paramount because it allows them to be more metacognitive about *when* and *why* they make decisions and its effects on students' outcomes. Developing these components (knowledge, metacognition, and perhaps vision) are crucial to purposeful decision making and thoughtful

adaptations because they afford teachers to be reflective about what they want to accomplish, the tools needed to align their visions with learning objectives and assessments, and how to make accommodations when things do not go as planned. Moreover, these dimensions are consistent with a constructivist philosophy which most teacher education programs espoused.

Conclusion

This study extended thoughtfully adaptive teaching studies by providing empirical evidence for planning and on-the-fly adaptations, investigating the relationship between adaptations designed to promote reading comprehension and students' change in understanding, and the extent to which teachers adapted to promote their vision. Teachers made a three-fold increase in on-the-fly adaptations compared to previous studies, most likely due to their teaching experience and the ways their instruction was less imposed by district mandates. Compared to on-the-fly adaptations, teachers adapted five times less during planning, most likely due to the lack of ambiguity present during planning time. Over half of their adaptations were designed to promote reading comprehension; despite the 50% increase of student responses from pre-to-post-interviews, no relationship could be linked to the teachers' adaptations. Minimal evidence was found linking their adaptations to their visions. Future studies are needed to

investigate the link between teachers' adaptations and student outcomes relative to the lesson's objectives and standardized tests.

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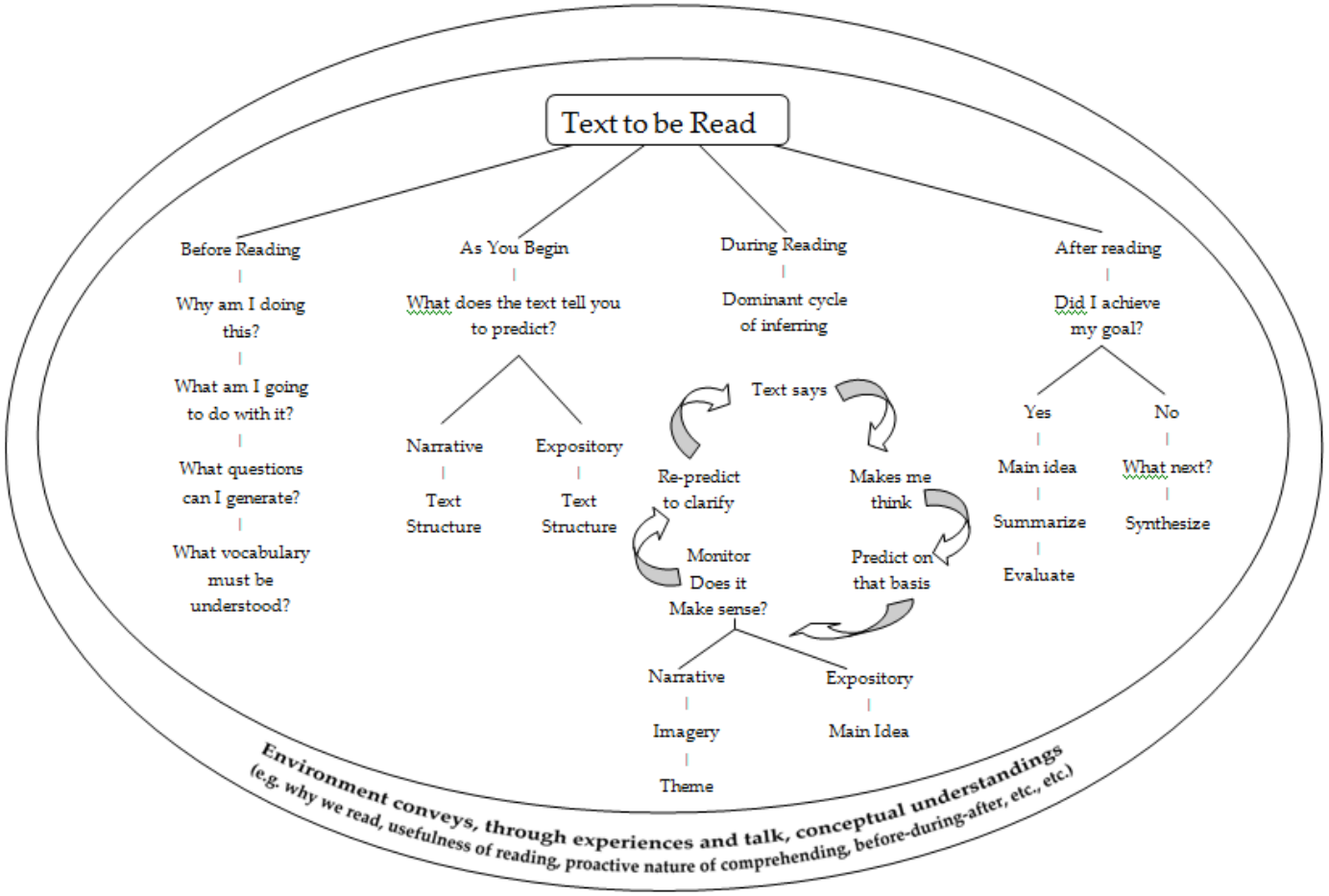
APPENDIX A

COMPREHENSION PROCESS MODEL



APPENDIX B

PRE-STUDY INTERVIEW PROTOCOL (TEACHER)

Introduction: Thoughtfully adaptive teaching is the way teachers change their teaching to meet students' needs. We are doing a study to try and learn about how to help students learn more. We are asking you to help because we want to find out what students think about classroom lessons and materials.

Context:

1. What would be helpful for us to understand about your teaching context? (*context*)
2. Can you tell me about your class? (*context*)
3. What part of your vision are you able/unable to enact at this time? (*distance*)
4. Are there obstacles in your school environment that make it difficult for you to teach the way you'd prefer to teach? What are they? What is the way you want to teach? (*context*)
5. How do you deal with such obstacles? (*context/distance*)
6. Does your school have rules you must follow when teaching reading comprehension? Examples? What do you do? (*context/distance*)
7. Are you able to do what you want to do in your classroom/ school? (*context*)

Visioning:

1. Why did you become a teacher? What is it that you really want to accomplish? (*focus/range*)
2. What are the big goals you are trying to accomplish as a teacher? (*focus/range*)
3. What do you want your students to learn? (*focus/range*)
4. What do you want them to become? (*focus/range*)
5. How do you attempt to enact your vision? Give me an example. (*distance*)
6. Can you give me an example of a lesson you taught in the past that was designed to enact your vision? What methods did you use to accomplish this? (*distance*)
7. What do you look for in students which indicate they are "getting" your vision? (*distance*)

8. Is there ever a time when you intentionally decide NOT to enact your vision? When? Why? (*context*)

Instructional practices:

1. How do you normally teach reading comprehension? (*context*)
2. What kinds of materials do you use to teach reading comprehension? (*context*)
3. What kinds of methods do you use to teach reading comprehension? (*context*)

Student Outcomes:

1. What do you want your students to know and be able to do as a result of you teaching reading comprehension? (*focus*/*range*)
2. What does it take for students to become strategic in their reading?
3. What happens if you sense that they're not getting the idea to be strategic?

APPENDIX C

PRE- AND POST-STUDY INTERVIEW (STUDENT)

Hand student the teacher provided text:

1. What is the first thing you do when you are given a section like this to read (i.e., what do you do before you read)?
2. What kinds of things do you do to help you understand when you are reading? What do you do if you don't understand?
3. What do you do after you are finished reading a section like this?

APPENDIX D

PRE-LESSON INTERVIEW (TEACHER)

To help me understand what I will be observing in your next reading lesson, I need to ask a few questions about what you will be teaching.

1. What are you planning to teach today?
    a. What is it you want students to be able to do and know?
    b. What instructional strategy are you using?
    c. Why is it important to do this lesson?
2. Is what you're doing today in any way a change?
    a. in terms of a modification of district or school requirements?
    b. in terms of a modification in what the materials suggested to do?
    c. in terms of how you have done this kind of lesson in the past?
    d. in terms of your instructional strategies?
3. If so, why did you make this change?

APPENDIX E

TEACHER OBSERVATION PROTOCOL

Directions: During the lesson observation, use the space below to note all of the following any teacher action that might be an adaptation (i.e., it wasn't discussed in planning).

Teacher: Lesson Focus: Date:

APPENDIX F

POST LESSON INTERVIEW (TEACHER)

1. I saw you do _____ during the lesson. Was that an adaptation? If yes, why did you make that adaptation?
2. Are there times when you would have done this differently, or adapted in a different way?
3. Omissions of what had been planned: *If the teacher seemed to omit something she had planned to do:* I thought you said during planning that you would do _____ but I didn't see you do it. Why not?
4. Were there times during the lesson when you considered adapting but then decided not to? If so, explain.
5. Were there any adaptations in your lesson that I missed? Explain.